

**SEZNAM PŘÍLOH**

Příloha 1: Přehledná situace

Příloha 2: Podrobná situace

Příloha 3: Zpráva o inklinometrickém měření

Příloha 4: Kalibrační listy nainstalovaných čidel

Příloha 5: Souhrnná tabulka prvků GTM

Příloha 6: Geologická dokumentace nových vrtů

Název zakázky:	Karlovy Vary – Nové Sedlo u Lokte – Sokolov, GTP a STP		
Číslo zakázky:	2023 - 345	Objednatel:	METROPROJEKT Praha a.s.
Datum:	06 / 2024	Zpracoval:	Mgr. Petr Karlín
Počet stran:	133	Schválil:	Mgr. Petr Karlín

## **PŘEHLEDNÁ SITUACE**

Název zakázky:	Karlovy Vary – Nové Sedlo u Lokte – Sokolov, GTP a STP		
Číslo zakázky:	2023 - 345	Objednatel:	METROPROJEKT Praha a.s.
Datum:	06 / 2024	Zpracoval:	Mgr. Petr Karlín
Počet stran:	1	Schválil:	Mgr. Petr Karlín



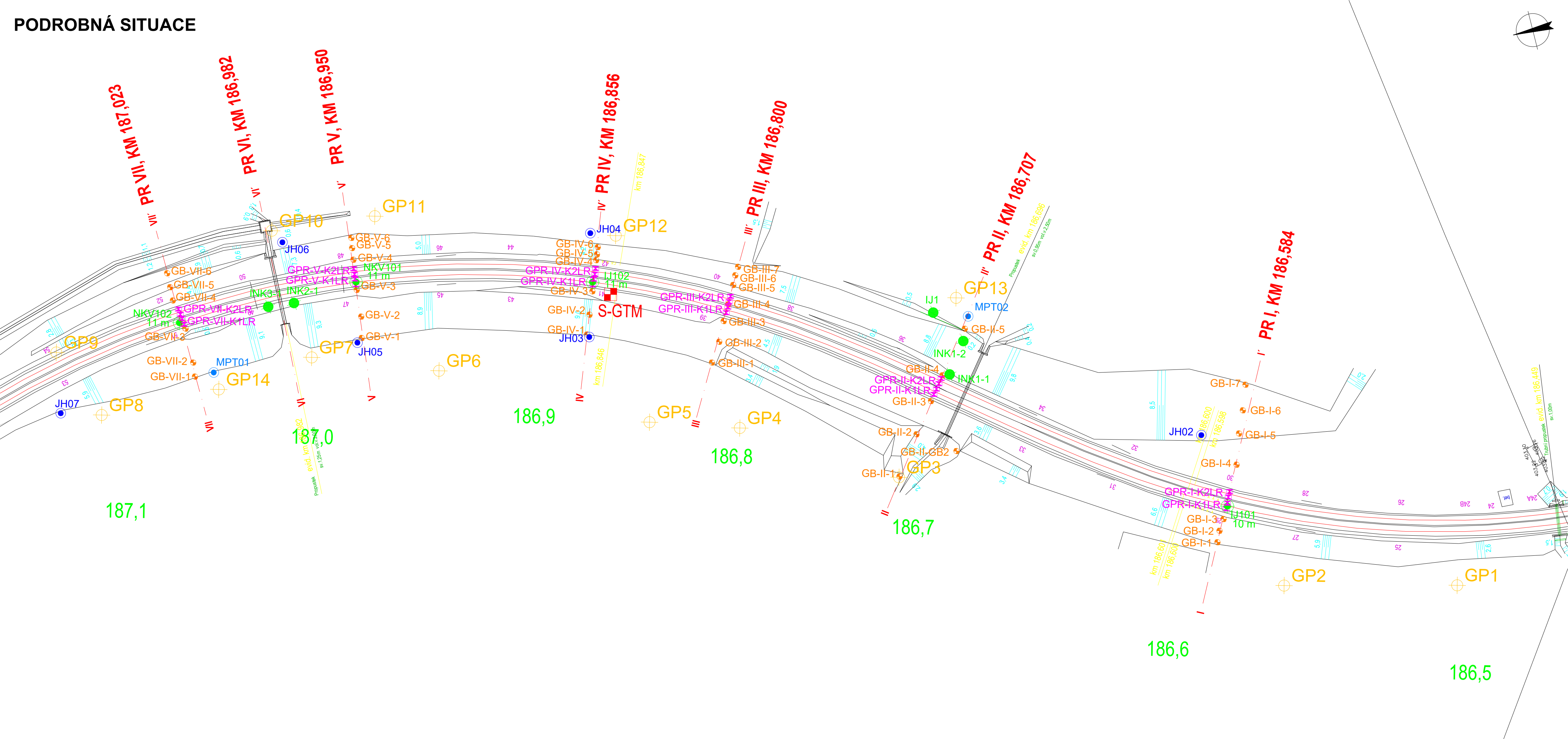
PŘÍLOHA Č.1	PŘEHLEDNÁ SITUACE		
Název zakázky:	Karlovy Vary – Nové Sedlo u Lokte – Sokolov, GTP a STP		
Číslo zakázky:	2023 - 345	Objednatel:	METROPROJEKT Praha a.s.
Datum:	06/2024	Zpracovala:	Mgr. Petr Karlín
Měřítko:	1: 14 000	Schválil:	Mgr. Filip Dudík

## PODROBNÁ SITUACE

Název zakázky:	Karlovy Vary – Nové Sedlo u Lokte – Sokolov, GTP a STP		
Číslo zakázky:	2023 - 345	Objednatel:	METROPROJEKT Praha a.s.
Datum:	06 / 2024	Zpracovala:	Ing. Veronika Suchanová
Počet stran:	1	Schválil:	Mgr. Petr Karlín



PODROBNÁ SITUACE



LEGENDA

Stávající prvky monitoringu

- IJ1 Inklinometrické vrtý
- MPT02 Snímače pórového tlaku
- JH04 Hydrogeologické pozorovací vrtý
- GP2 Geodetické pilíře
- GB-II-3 Geodetické body v tělese náspu
- GPR-II-K1LR Geodetické body v koleji
- IJ101 Vrtý pro inklinometrické měření
- NKV101 Vrtý pro náklonoměrné měření

Doplňkové prvky monitoringu

- S-GTM Sběrná stanice pro ukládání a odesílání naměřených dat

GeoTec GS <sup>®</sup> Chmelová 2920/6, 106 00 Praha 10				
Objednatel:	METROPROJEKT Praha a.s., Argentinská 1621/36, 170 00 Praha 7			
Název zakázky:	Karlovy Vary - Nové Sedlo u Lokte - Sokolov, GTP a STP			
Číslo zakázky:	Zpracovala:	Schválil:	Měřítko:	Datum:
2023-345	Ing. Suchanová	Mgr. Dudík	1 : 1000	06/2024
PODROBNÁ SITUACE				Číslo přílohy:
				2

**ZPRÁVA O MĚŘENÍ INKLINOMETRICKÝCH VRTŮ**

Název zakázky:	Karlovy Vary – Nové Sedlo u Lokte – Sokolov, GTP a STP		
Číslo zakázky:	2023 - 345	Objednatel:	METROPROJEKT Praha a.s.
Datum:	06 / 2024	Zpracovala:	SG Geotechnika a.s., Praha
Počet stran:	47	Schválil:	Mgr. Petr Karlín



# KARLOVY VARY - RYBÁŘE

Zpráva o inklinometrickém měření čtyř vrtů na trati  
Karlovy Vary - Sokolov

ČÍSLO ZAKÁZKY: 24.0161.255Z28

KVĚTEN 2024



**Identifikace zakázky:**Název zakázky: **Karlovy Vary – inklinometrické měření**Číslo zakázky: **24.0161.255Z28**Objednatel: **GeoTec-GS a.s.**  
Chmelová 2920/6  
106 00 PrahaČíslo objednatele: **OB24/187/2023-345**Stav zpracování: **Čistopis**Zhotovitel: **SG Geotechnika a.s.**  
Geologická 988/4  
152 00 Praha 5  
Česká republika  
[info@geotechnika.cz](mailto:info@geotechnika.cz)

V Praze dne: 31. května 2024

 **SG GEOTECHNIKA.**Geologická 988/4 · 152 00 Praha 5  
IČO: 41192168 · DIČ: CZ41192168

Zpracoval: Jméno: Ing. Michal Kvarda

Podpis:



Schválil: Ing. Michal Kvarda



## Obsah

1. Úvod .....	4
2. Výsledky inklinometrických měření .....	5

## Grafická a přílohová část

1. Grafické a numerické výstupy inklinometrických měření ve vrtu IN1-1
2. Grafické a numerické výstupy inklinometrických měření ve vrtu IN1-2
3. Grafické a numerické výstupy inklinometrických měření ve vrtu IN2-1
4. Grafické a numerické výstupy inklinometrických měření ve vrtu IN3-1

# 1. Úvod

Na základě objednávky č. OB24/187/2023-345 společnosti GeoTec-GS a.s. bylo dne 31.5.2024 provedeno přeměření čtyř inklinometrických vrtů v oblasti oblouku železniční trati ve čtvrti Karlovy Vary – Rybáře. Vrtý byly odvrtány a vystrojeny inklinometrickými pažnicemi v rámci sanace železničního náspu v listopadu a prosinci 2021, kdy bylo provedeno i základní měření 8.12.2021.

Inklinometrické měření bylo prováděno společností SG Geotechnika a.s. v roce 2022 a na počátku roku 2023. Pro měření byla použita inklinometrická aparatura DGSI (USA).

Umístění vrtů je schematicky uvedeno na výřezu z mapy širšího okolí na obr. 1.



Obr. 1 Umístění sledovaných inklinometrických vrtů (podklad [mapy.cz](https://mapy.cz))

Výsledky inklinometrických měření jednotlivých vrtů jsou uvedeny v přílohách této zprávy v následujícím formátu:

- grafický průběh kumulovaného horizontálního posunu včetně růžic horizontálního průmětu ve vybraných hloubkových úrovních
- průběh difference kumulovaných horizontálních složek pro obě měřené roviny A a B
- numerický výstup kumulovaného horizontálního posunu včetně jeho azimutu
- numerický výstup horizontálních složek pro roviny A a B
- výstup zdrojových dat inklinometrického měření ve formátu Glötzl (\*.txt), tyto soubory jsou předány objednateli i elektronicky

Numerické výstupy jsou sestaveny pro měření základní (8.12.2021) a poslední tři měření (22.8.2022, 23.1.2023 a 31.5.2024).

## 2. Výsledky inklinometrických měření

### Vrt IN1-1

Měřitelná hloubka: 15,0 m

Azimut roviny A: 132°

Rezerva mezi dnem vrtu a první měřitelnou značkou: 40 cm



Výsledky měření jsou uvedeny v Příloze 1. Od minulého měření ze dne 25.1.2023 nebyly zjištěny žádné významné změny.

### Vrt IN1-2

Měřitelná hloubka: 8,0 m

Azimut roviny A: 115°

Rezerva mezi dnem vrtu a první měřitelnou značkou: 37 cm



Výsledky měření jsou uvedeny v Příloze 2. Od minulého měření ze dne 25.1.2023 byl zjištěn náklon vrtu v úseku 0 až 3 m jihovýchodním směrem. Přírůstek posunu v oblasti zhlaví činí 6 mm.

### Vrt IN2-1

Měřitelná hloubka: 12,0 m

Azimut roviny A: 266°

Rezerva mezi dnem vrtu a první měřitelnou značkou: 23 cm

Při měření byl použit nástavec na inklinometrickou pažnici o délce 25 cm. Důvodem je odlišná délka vrtu při základním měření, kdy ještě nebylo osazeno zhlaví a teprve dodatečně byl vrt o 25 cm prodloužen. Nasazený nástavec doplňuje délku pažnice na celý měřicí krok 0,5 m.



Výsledky měření jsou uvedeny v Příloze 3. Od minulého měření ze dne 25.1.2023 byl zjištěn náklon vrtu v úseku 0 až 1 m západním směrem. Přírůstek posunu v oblasti zhlaví činí 4 mm.

### Vrt IN3-1

Měřitelná hloubka: 11,5 m

Azimut roviny A: 276°

Rezerva mezi dnem vrtu a první měřitelnou značkou: 9 cm



Výsledky měření jsou uvedeny v Příloze 4. Od minulého měření ze dne 25.1.2023 byly zjištěny drobné posuny v úseku 0 až 1,5 m.





SG Geotechnika a.s.  
Geologická 988/4, 152 00 Praha 5

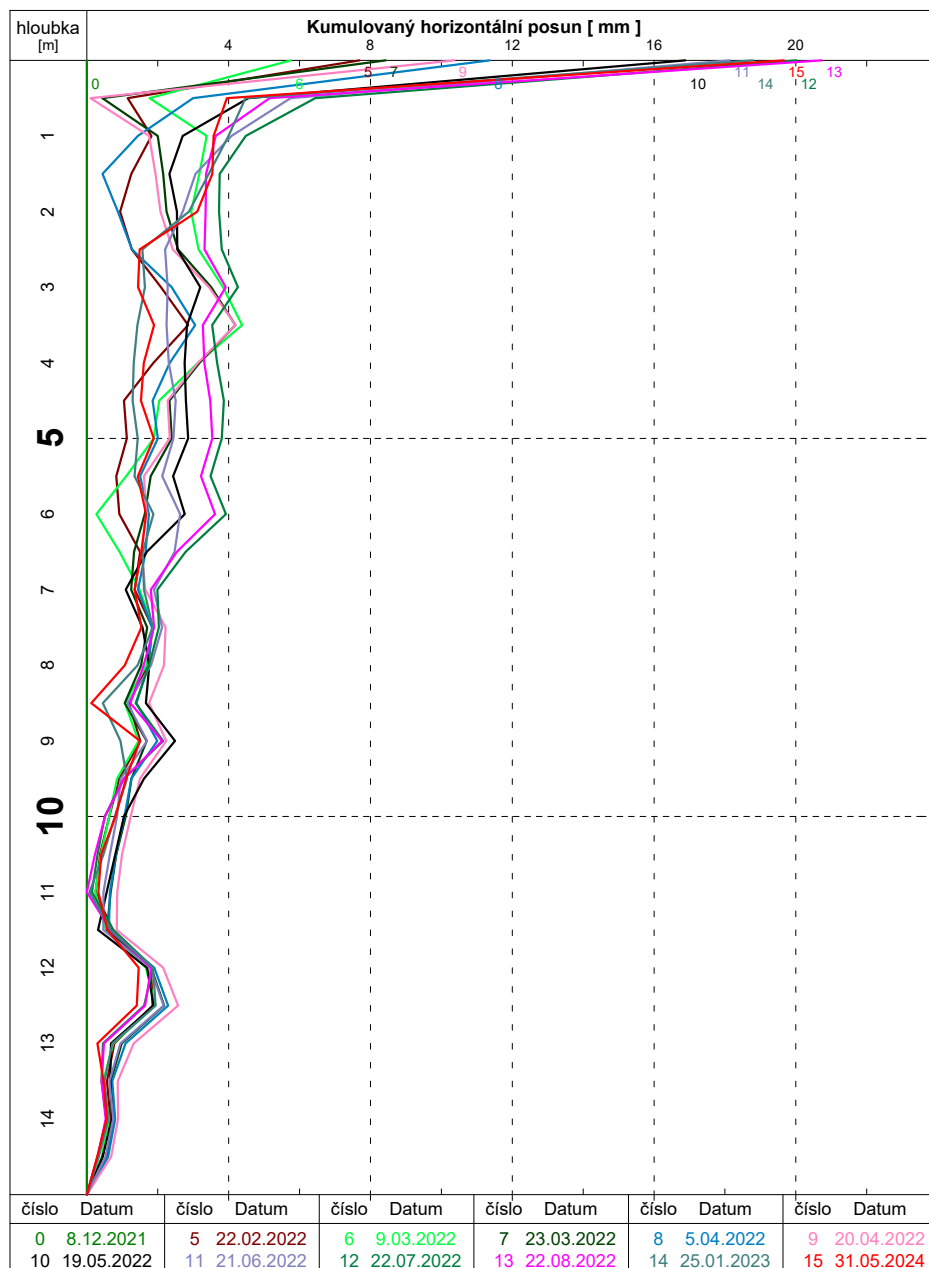
Objednatel:	GeoTec-GS a.s., Chmelová 2920/6, 106 00 Praha			
Název zakázky:	Karlovy Vary – inklinometrické měření			
Číslo zakázky:	Zpracoval:	Schválil:	Počet stran:	Datum:
24.0161.255Z28	Ing. Kvarda	Ing. Kvarda	10	květen 2024
VRT IN1-1				Číslo přílohy:
				1

# MĚŘENÍ PŘESNÉ INKLINOMETRIE

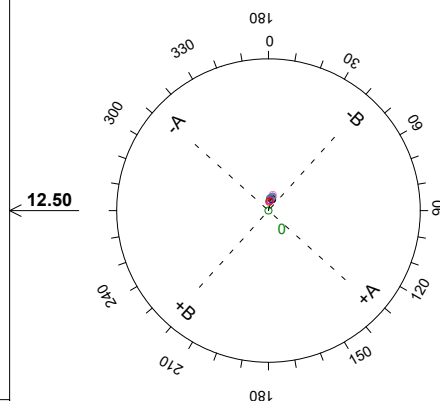
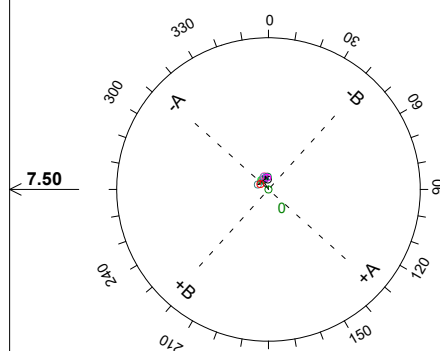
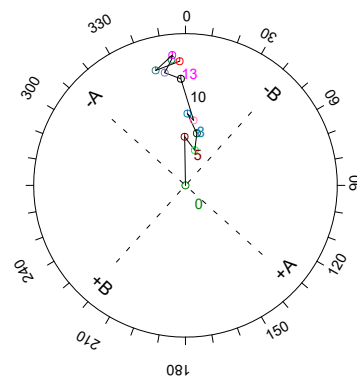
## Vektorové řešení

Vrt : IN1-1

Lokalita : K. Vary - Rybáře



Referenční hloubka : 15.0 [ m ]

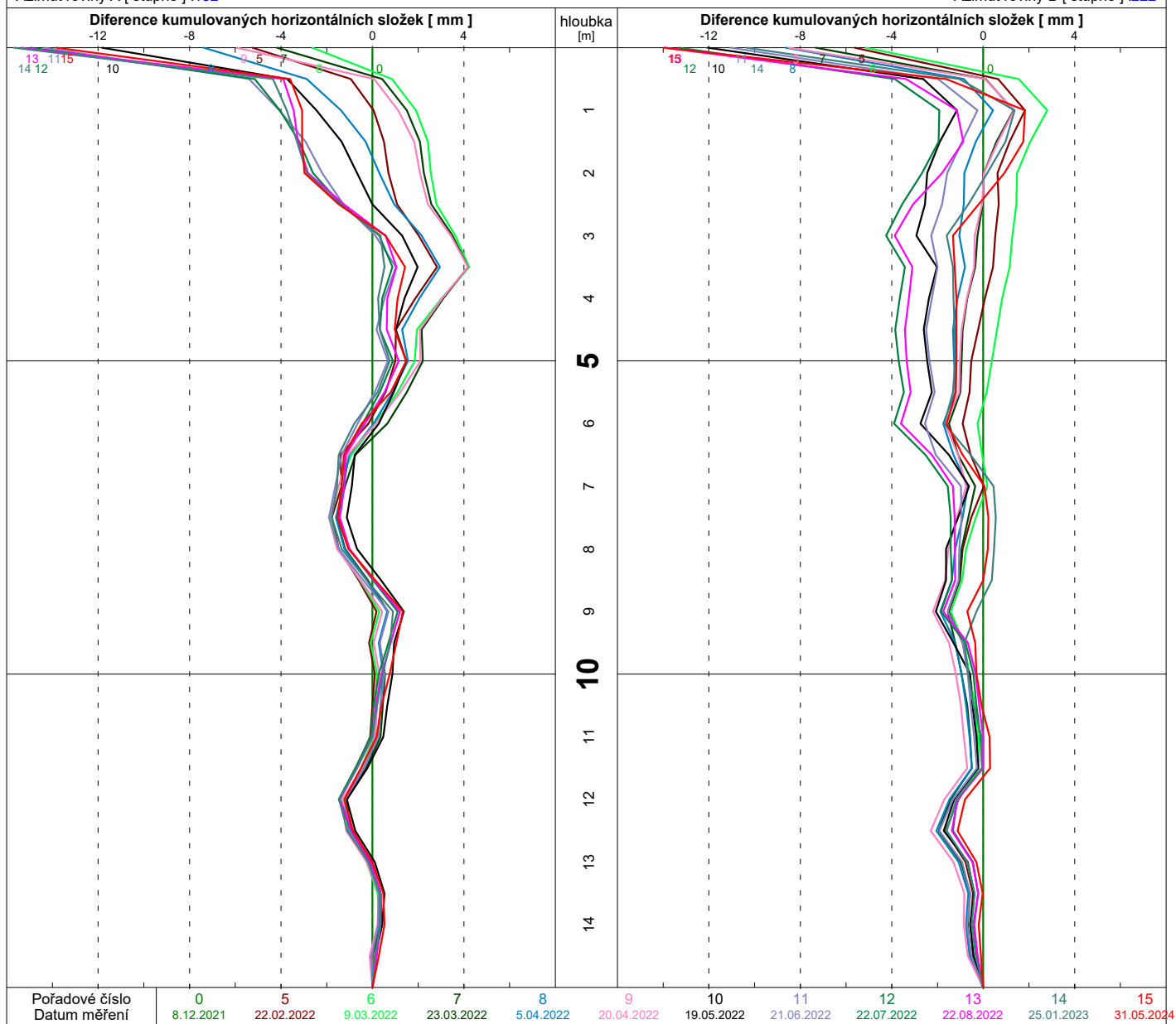


**Měření přesné inklinometrie**

Vrt : IN1-1 [ K. Vary - Rybáře ]

Azimut roviny A [ stupně ] :132

Azimut roviny B [ stupně ] :222



Referenční hloubka : 15.0 [ m ]

## V Ý P I S I N K L I N O M E T R I C K É H O M Ě Ř E N Í

Vrt : IN1-1 [ K. Vary - Rybáře ]

## 9 : Kumulovaný horizontální posun [ mm ]

hloubka [ m ]	0 .měření 8.12.2021	13 .měření 22.08.2022	14 .měření 25.01.2023	15 .měření 31.05.2024
0.00	0.00	20.73	18.78	19.66
	0	354	345	357
	0.00	5.16	4.47	3.95
	0	353	326	336
	0.00	3.64	3.99	3.58
2.50	0	330	292	281
	0.00	3.37	3.44	3.54
	0	327	296	282
	0.00	3.35	2.88	3.12
	0	345	309	295
5.00	0.00	3.32	1.57	1.49
	0	20	337	320
	0.00	3.92	1.64	1.44
	0	50	54	65
	0.00	3.27	1.43	1.90
7.50	0	61	64	91
	0.00	3.31	1.32	1.61
	0	53	53	85
	0.00	3.48	1.29	1.53
	0	52	57	82
10.00	0.00	3.54	1.44	1.89
	0	61	73	93
	0.00	3.22	1.34	1.44
	0	51	52	76
	0.00	3.61	1.88	1.67
	0	37	17	25
	0.00	2.54	1.57	1.54
	0	14	332	348
	0.00	1.80	1.61	1.35
	0	359	296	310
	0.00	1.90	1.86	1.54
	0	353	295	304
	0.00	1.60	1.43	1.07
	0	3	293	301
	0.00	1.23	0.45	0.13
	0	46	256	0
	0.00	2.12	0.95	1.50
	0	76	114	104
	0.00	1.05	1.13	1.11
	0	92	85	114
	0.00	0.52	0.79	0.81
	0	93	77	110
	0.00	0.23	0.47	0.41
	0	83	67	121
	0.00	0.00	0.08	0.33
	0	0	42	190
	0.00	0.68	0.68	0.58
	0	312	316	281
	0.00	1.82	1.87	1.46
	0	350	351	345



9 : Kumulovaný horizontální posun [ mm ]

hloubka [ m ]	0 .měření 8.12.2021	13 .měření 22.08.2022	14 .měření 25.01.2023	15 .měření 31.05.2024
12.50	0.00 0	1.64 9	1.94 7	1.41 5
	0.00 0	0.48 33	0.72 28	0.30 42
	0.00 0	0.42 99	0.50 83	0.48 129
	0.00 0	0.53 83	0.61 77	0.56 111
	0.00 0	0.31 77	0.34 59	0.29 112

profil 15.00

## V Ý P I S I N K L I N O M E T R I C K É H O M Ě Ř E N Í

Vrt : IN1-1 [ K. Vary - Rybáře ]

## 1 : Horizontální složky [ mm ]

Rovina A [ azimut : 132 stupňů ]

hloubka [ m ]	0 .měření 8.12.2021	13 .měření 22.08.2022	14 .měření 25.01.2023	15 .měření 31.05.2024
0.00	1.83	-9.63	-9.50	-8.40
	0.68	0.22	0.08	0.15
	-0.32	-0.52	-0.77	-0.32
	-0.77	-1.20	-1.20	-0.88
	0.35	-1.23	-1.10	-1.15
2.50	1.00	-0.82	-0.77	-1.05
	0.13	-0.35	-0.05	-0.73
	-1.88	-1.48	-1.60	-1.55
	-3.33	-3.30	-3.40	-3.20
	-4.57	-5.10	-5.00	-5.07
5.00	-5.15	-4.53	-4.63	-4.47
	-6.10	-5.25	-5.07	-4.82
	-8.05	-7.20	-7.38	-7.28
	-11.90	-11.85	-11.82	-11.80
	-13.82	-13.63	-13.60	-13.65
7.50	-13.43	-13.85	-13.85	-13.90
	-11.35	-12.43	-12.45	-12.52
	-9.60	-10.73	-10.75	-10.80
	-9.95	-9.55	-9.82	-9.68
	-8.45	-8.05	-8.13	-8.15
10.00	-6.82	-6.57	-6.57	-6.47
	-5.20	-5.05	-5.00	-4.97
	-4.40	-3.72	-3.72	-3.72
	-4.93	-4.18	-4.15	-4.20
	-5.07	-5.60	-5.43	-5.45
12.50	-5.28	-6.10	-6.20	-6.13
	-3.95	-4.38	-4.45	-4.43
	-3.75	-3.75	-3.78	-3.80
	-5.05	-4.88	-4.80	-4.80
	-3.88	-3.70	-3.78	-3.60

## V Ý P I S I N K L I N O M E T R I C K É H O M Ě Ř E N Í

Vrt : IN1-1 [ K. Vary - Rybáře ]

## 1 : Horizontální složky [ mm ]

Rovina B [ azimut : 222 stupňů ]

hloubka [ m ]	0 .měření 8.12.2021	13 .měření 22.08.2022	14 .měření 25.01.2023	15 .měření 31.05.2024
0.00	10.25	-0.30	0.95	-2.10
	9.07	6.85	6.65	5.63
	8.90	8.63	9.30	8.98
	8.75	9.68	9.55	9.57
	7.90	9.18	8.73	9.02
2.50	6.13	6.93	7.07	7.25
	6.10	5.32	5.82	6.03
	8.48	8.63	8.45	8.40
	8.73	8.90	8.68	8.73
	8.50	8.43	8.48	8.50
5.00	7.65	7.47	7.75	7.68
	7.35	7.78	7.72	7.75
	8.80	7.45	7.65	8.10
	6.10	5.18	5.10	5.15
	4.30	4.22	4.20	4.13
7.50	3.25	3.25	3.33	3.28
	2.67	2.65	2.78	2.88
	2.35	2.88	3.03	3.05
	4.00	2.92	4.53	3.65
	6.55	6.20	6.38	6.50
10.00	7.97	7.82	7.75	7.75
	8.20	8.02	7.85	7.85
	7.82	7.82	7.80	7.80
	8.50	9.63	9.63	9.60
	8.05	8.30	8.48	8.38
12.50	6.10	5.20	5.20	5.28
	8.55	8.30	8.23	8.27
	10.73	10.90	10.85	10.90
	11.80	11.65	11.63	11.70
	14.43	14.18	14.10	14.32

Projekt: KVary  
Měřený bod: IN1-1  
Soubor měření: IN1-1  
Datum: 08.12.2021 14:31

Krok	A 1	A 2	B 1	B 2
m	1.X	1.X	1.X	1.X
0.5	37	-36	198	-212
1	6	-21	179	-184
1.5	-11	2	176	-180
2	-21	10	173	-177
2.5	2	-12	156	-160
3	16	-24	120	-125
3.5	-11	-16	128	-116
4	-45	30	167	-172
4.5	-72	61	172	-177
5	-96	87	168	-172
5.5	-109	97	151	-155
6	-128	116	145	-149
6.5	-161	161	166	-186
7	-245	231	120	-124
7.5	-282	271	84	-88
8	-274	263	63	-67
8.5	-232	222	52	-55
9	-198	186	45	-49
9.5	-210	188	82	-78
10	-170	168	129	-133
10.5	-143	130	157	-162
11	-108	100	162	-166
11.5	-95	81	154	-159
12	-104	93	168	-172
12.5	-102	101	159	-163
13	-111	100	120	-124
13.5	-85	73	169	-173
14	-80	70	213	-216
14.5	-107	95	234	-238
15	-82	73	287	-290



Projekt: KVary  
Měřený bod: IN1-1  
Soubor měření: IN1-1  
Datum: 22.08.2022 14:21

Krok	A 1	A 2	B 1	B 2
m	1.X	1.X	1.X	1.X
0.5	-191	194	-3	9
1	2	-7	139	-135
1.5	-12	9	174	-171
2	-26	22	195	-192
2.5	-26	23	185	-182
3	-17	16	140	-137
3.5	-7	7	110	-103
4	-33	26	174	-171
4.5	-68	64	180	-176
5	-103	101	170	-167
5.5	-93	88	151	-148
6	-107	103	157	-154
6.5	-140	148	152	-146
7	-240	234	105	-102
7.5	-275	270	86	-83
8	-279	275	66	-64
8.5	-250	247	55	-51
9	-217	212	59	-56
9.5	-194	188	63	-54
10	-158	164	126	-122
10.5	-134	129	158	-155
11	-102	100	162	-159
11.5	-77	72	158	-155
12	-85	82	194	-191
12.5	-117	107	168	-164
13	-124	120	106	-102
13.5	-90	85	168	-164
14	-77	73	220	-216
14.5	-100	95	235	-231
15	-76	72	286	-281

Projekt: KVary

Měřený bod: IN1-1

Soubor měření: IN1-1

Datum: 25.01.2023 11:29

Krok	A 1	A 2	B 1	B 2
m	1.X	1.X	1.X	1.X
0.5	-196	184	31	-7
1	-3	-6	131	-135
1.5	-18	13	184	-188
2	-27	21	189	-193
2.5	-25	19	173	-176
3	-17	14	140	-143
3.5	-3	-1	115	-118
4	-36	28	167	-171
4.5	-71	65	172	-175
5	-103	97	167	-172
5.5	-96	89	153	-157
6	-105	98	153	-156
6.5	-146	149	151	-155
7	-241	232	101	-103
7.5	-276	268	82	-86
8	-280	274	65	-68
8.5	-252	246	54	-57
9	-219	211	59	-62
9.5	-200	193	89	-92
10	-161	164	126	-129
10.5	-136	127	153	-157
11	-102	98	155	-159
11.5	-79	70	154	-158
12	-87	79	191	-194
12.5	-108	109	169	-170
13	-129	119	103	-105
13.5	-93	85	162	-167
14	-79	72	215	-219
14.5	-100	92	231	-234
15	-78	73	281	-283

Projekt: KVary

Měřený bod: IN1-1

Soubor měření: IN1-1

Datum: 31.05.2024 11:49

Krok	A 1	A 2	B 1	B 2
m	1.X	1.X	1.X	1.X
0.5	-162	174	-49	35
1	-1	-7	112	-113
1.5	-8	5	179	-180
2	-20	15	191	-192
2.5	-25	21	180	-181
3	-21	21	144	-146
3.5	-25	4	129	-112
4	-34	28	167	-169
4.5	-66	62	174	-175
5	-104	99	169	-171
5.5	-92	87	153	-154
6	-99	94	154	-156
6.5	-143	148	152	-172
7	-240	232	102	-104
7.5	-276	270	82	-83
8	-279	277	65	-66
8.5	-254	247	57	-58
9	-218	214	60	-62
9.5	-208	179	91	-55
10	-161	165	129	-131
10.5	-132	127	154	-156
11	-101	98	156	-158
11.5	-77	72	155	-157
12	-86	82	191	-193
12.5	-109	109	168	-167
13	-124	121	104	-107
13.5	-91	86	165	-166
14	-78	74	217	-219
14.5	-98	94	233	-235
15	-74	70	286	-287



SG Geotechnika a.s.  
Geologická 988/4, 152 00 Praha 5

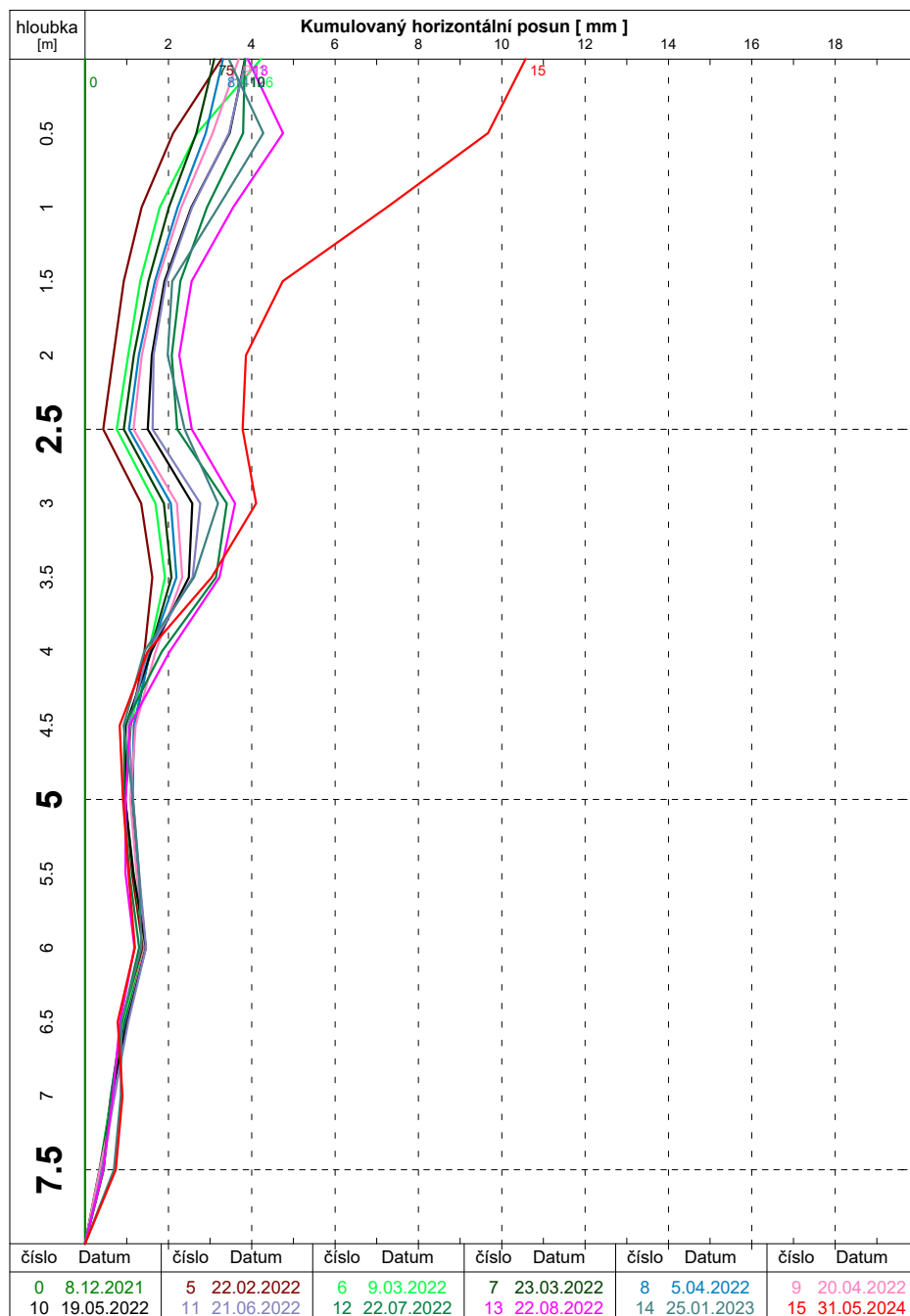
Objednatel:	GeoTec-GS a.s., Chmelová 2920/6, 106 00 Praha			
Název zakázky:	Karlovy Vary – inklinometrické měření			
Číslo zakázky:	Zpracoval:	Schválil:	Počet stran:	Datum:
24.0161.255Z28	Ing. Kvarda	Ing. Kvarda	9	květen 2024
VRT IN1-2				Číslo přílohy:
				2

# MĚŘENÍ PŘESNÉ INKLINOMETRIE

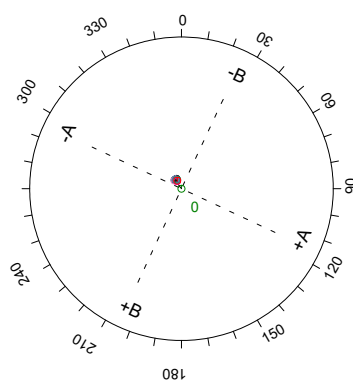
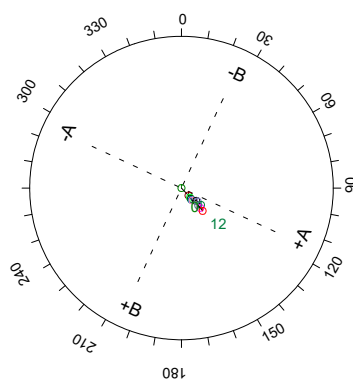
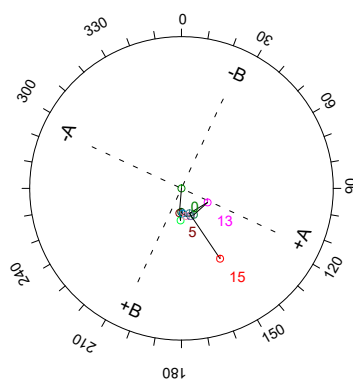
## Vektorové řešení

Vrt : IN1-2

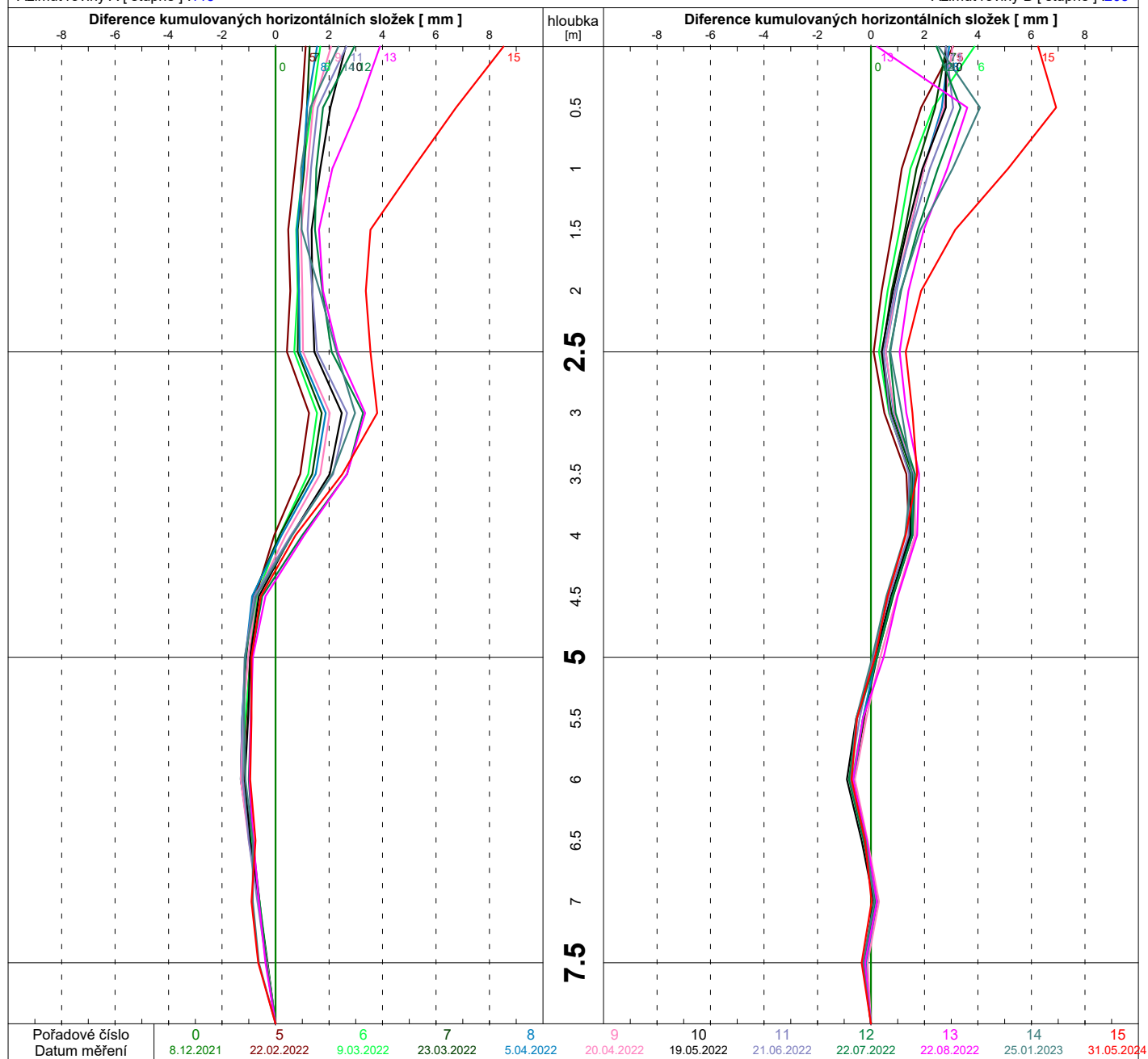
Lokalita : K. Vary - Rybáře



Referenční hloubka : 8.0 [ m ]







## V Ý P I S I N K L I N O M E T R I C K É H O M Ě Ř E N Í

Vrt : IN1-2 [ K. Vary - Rybáře ]

## 9 : Kumulovaný horizontální posun [ mm ]

hloubka [ m ]	0 .měření 8.12.2021	13 .měření 22.08.2022	14 .měření 25.01.2023	15 .měření 31.05.2024
0.00	0.00	3.91	3.45	10.57
	0	118	162	151
	0.00	4.75	4.28	9.67
	0	164	187	161
	0.00	3.56	3.19	7.25
2.50	0	168	188	160
	0.00	2.56	2.09	4.75
	0	166	177	157
	0.00	2.26	1.98	3.86
	0	153	149	144
5.00	0.00	2.56	2.39	3.78
	0	140	133	135
	0.00	3.60	3.19	4.10
	0	137	136	137
	0.00	3.22	2.62	3.04
7.50	0	149	151	150
	0.00	2.03	1.42	1.50
	0	173	179	175
	0.00	1.07	0.93	0.83
	0	226	257	246
	0.00	0.97	1.15	0.91
	0	266	293	286
	0.00	0.97	1.30	1.04
	0	313	320	325
	0.00	1.19	1.35	1.20
	0	330	329	332
	0.00	0.84	0.87	0.78
	0	305	308	312
	0.00	0.66	0.86	0.90
	0	275	287	293
	0.00	0.44	0.69	0.74
	0	326	321	323

profil

8.00

## V Ý P I S I N K L I N O M E T R I C K É H O M Ě Ř E N Í

Vrt : IN1-2 [ K. Vary - Rybáře ]

## 1 : Horizontální složky [ mm ]

Rovina A [ azimut : 115 stupňů ]

hloubka [ m ]	0 .měření 8.12.2021	13 .měření 22.08.2022	14 .měření 25.01.2023	15 .měření 31.05.2024
0.00	31.13	31.92	32.17	32.90
	31.95	32.92	32.30	33.58
	30.95	31.45	30.92	32.53
	28.58	28.42	27.90	28.75
	25.65	25.10	25.02	25.48
2.50	19.77	18.75	19.08	19.52
	18.80	19.48	19.65	20.10
	17.42	19.02	18.92	19.17
	16.60	18.05	17.95	17.90
	16.80	17.27	17.23	17.15
5.00	17.08	17.15	17.10	17.08
	15.23	15.27	15.18	15.27
	17.67	17.52	17.40	17.48
	18.58	18.38	18.58	18.73
	19.10	18.85	18.88	18.85
7.50	19.48	19.10	18.85	18.83

## V Ý P I S I N K L I N O M E T R I C K É H O M Ě Ř E N Í

Vrt : IN1-2 [ K. Vary - Rybáře ]

## 1 : Horizontální složky [ mm ]

Rovina B [ azimut : 205 stupňů ]

hloubka [ m ]	0 .měření 8.12.2021	13 .měření 22.08.2022	14 .měření 25.01.2023	15 .měření 31.05.2024
0.00	-4.05	-7.43	-5.60	-4.72
	-5.00	-4.25	-3.97	-3.20
	-6.05	-5.18	-4.85	-4.07
	-7.25	-6.68	-6.50	-5.97
	-7.07	-6.75	-6.70	-6.50
2.50	-6.22	-6.47	-6.65	-6.47
	-6.68	-7.15	-7.05	-6.85
	-7.25	-7.18	-7.00	-6.82
	-7.60	-6.88	-6.90	-6.93
	-7.72	-7.20	-7.20	-7.25
5.00	-6.93	-6.15	-6.32	-6.25
	-2.97	-2.60	-2.78	-2.78
	-4.20	-4.72	-4.75	-4.70
	-5.07	-5.45	-5.40	-5.32
	-5.95	-5.50	-5.53	-5.57
7.50	-7.25	-7.47	-7.55	-7.60

Projekt: KVary  
Měřený bod: IN1-2  
Soubor měření: IN1-2  
Datum: 08.12.2021 14:47

Krok	A 1	A 2	B 1	B 2
m	1.X	1.X	1.X	1.X
0.5	619	-626	-87	75
1	636	-642	-102	98
1.5	613	-625	-123	119
2	567	-576	-147	143
2.5	506	-520	-144	139
3	391	-400	-126	123
3.5	370	-382	-135	132
4	344	-353	-147	143
4.5	326	-338	-154	150
5	330	-342	-156	153
5.5	337	-346	-143	134
6	300	-309	-61	58
6.5	347	-360	-86	82
7	367	-376	-103	100
7.5	374	-390	-120	118
8	386	-393	-146	144

Projekt: KVary  
Měřený bod: IN1-2  
Soubor měření: IN1-2  
Datum: 22.08.2022 14:36

Krok	A 1	A 2	B 1	B 2
m	1.X	1.X	1.X	1.X
0.5	637	-640	-148	149
1	660	-657	-83	87
1.5	628	-630	-101	106
2	569	-568	-132	135
2.5	499	-505	-134	136
3	376	-374	-127	132
3.5	390	-389	-141	145
4	381	-380	-142	145
4.5	360	-362	-136	139
5	345	-346	-142	146
5.5	343	-343	-123	123
6	306	-305	-51	53
6.5	350	-351	-93	96
7	368	-367	-107	111
7.5	374	-380	-108	112
8	383	-381	-147	152

Projekt: KVary  
Měřený bod: IN1-2  
Soubor měření: IN1-2  
Datum: 25.01.2023 11:17

Krok	A 1	A 2	B 1	B 2
m	1.X	1.X	1.X	1.X
0.5	640	-647	-114	110
1	644	-648	-80	79
1.5	614	-623	-98	96
2	555	-561	-131	129
2.5	494	-507	-136	132
3	379	-384	-134	132
3.5	390	-396	-142	140
4	375	-382	-141	139
4.5	354	-364	-139	137
5	340	-349	-145	143
5.5	338	-346	-131	122
6	300	-307	-56	55
6.5	343	-353	-96	94
7	368	-375	-109	107
7.5	370	-385	-111	110
8	374	-380	-152	150



Projekt: KVary  
Měřený bod: IN1-2  
Soubor měření: IN1-2  
Datum: 31.05.2024 12:03

Krok	A 1	A 2	B 1	B 2
m	1.X	1.X	1.X	1.X
0.5	655	-661	-95	94
1	671	-672	-64	64
1.5	647	-654	-82	81
2	574	-576	-120	119
2.5	504	-515	-131	129
3	389	-392	-130	129
3.5	400	-404	-138	136
4	382	-385	-137	136
4.5	355	-361	-139	138
5	340	-346	-146	144
5.5	339	-344	-129	121
6	304	-307	-56	55
6.5	347	-352	-95	93
7	373	-376	-107	106
7.5	372	-382	-112	111
8	376	-377	-153	151



SG Geotechnika a.s.  
Geologická 988/4, 152 00 Praha 5

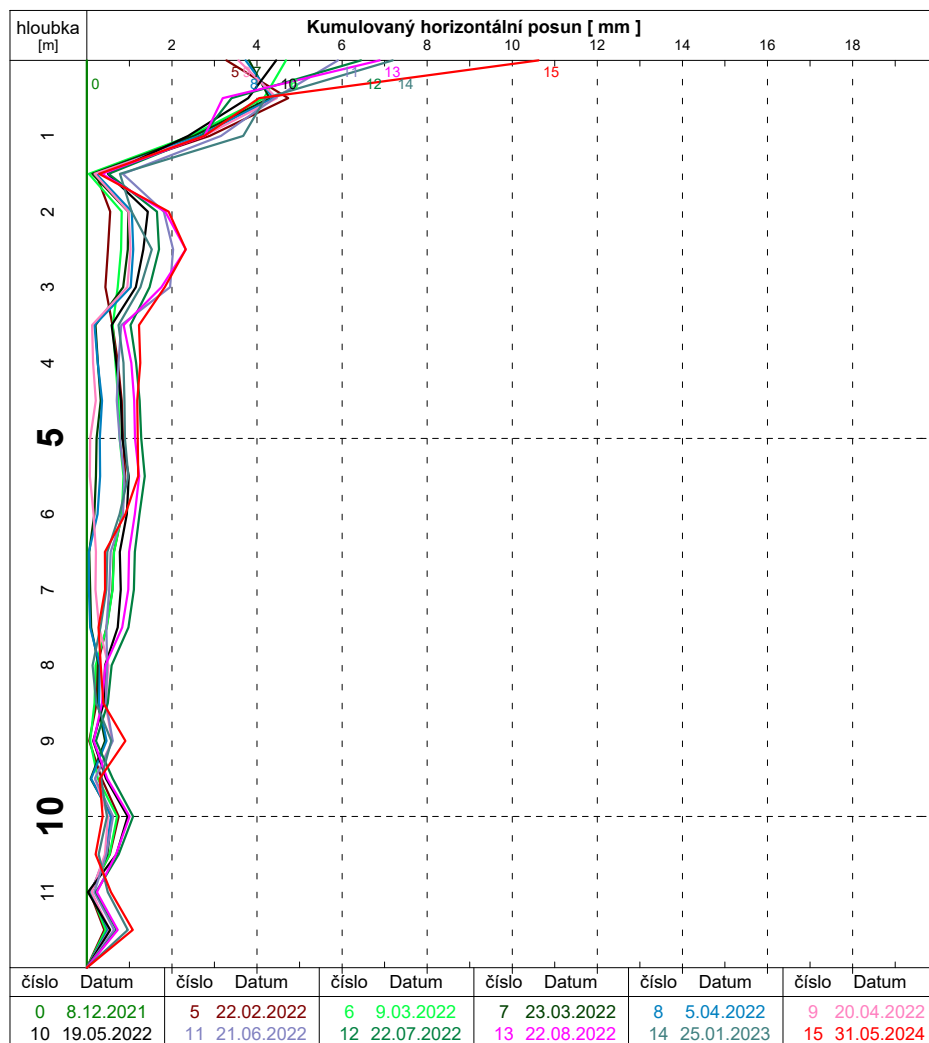
Objednatel:	GeoTec-GS a.s., Chmelová 2920/6, 106 00 Praha			
Název zakázky:	Karlovy Vary – inklinometrické měření			
Číslo zakázky:	Zpracoval:	Schválil:	Počet stran:	Datum:
24.0161.255Z28	Ing. Kvarda	Ing. Kvarda	9	květen 2024
VRT IN2-1				Číslo přílohy:
				3

# MĚŘENÍ PŘESNÉ INKLINOMETRIE

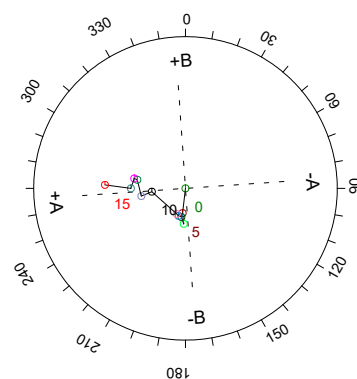
## Vektorové řešení

Vrt : IN2-1

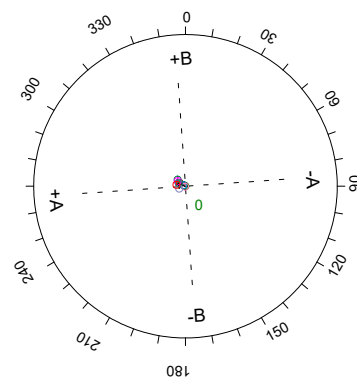
Lokalita : K. Vary - Rybáře



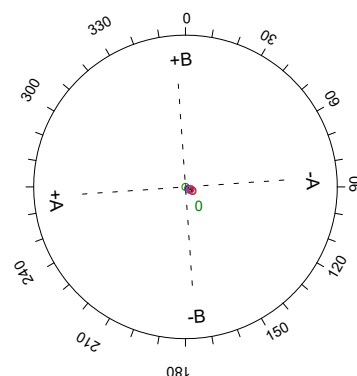
Referenční hloubka : 12.0 [ m ]



5.50



11.50

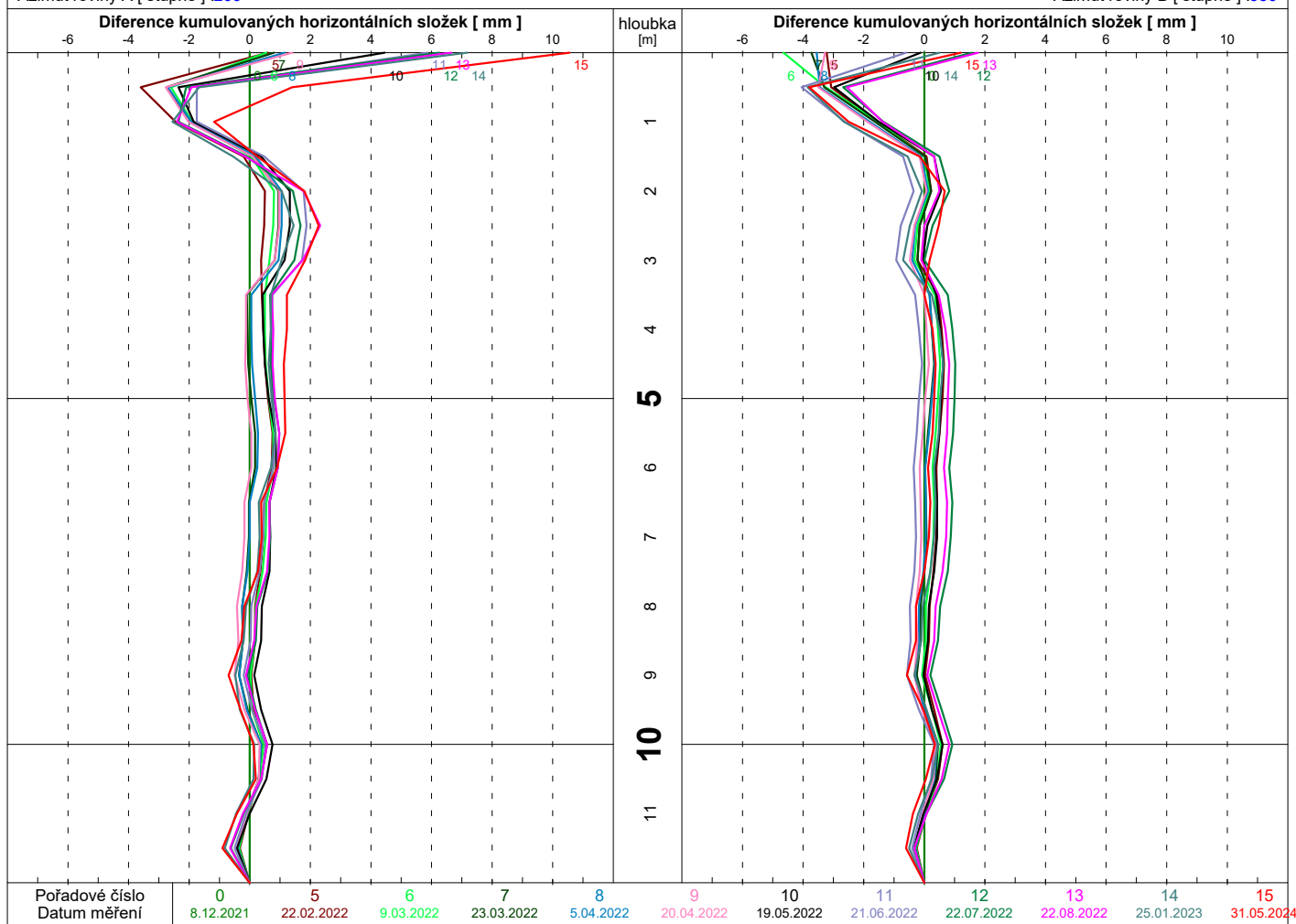


**Měření přesné inklinometrie**

Azimut roviny A [ stupně ] :266

Vrt : IN2-1 [ K. Vary - Rybáře ]

Azimut roviny B [ stupně ] :356



Referenční hloubka : 12.0 [ m ]

## V Ý P I S I N K L I N O M E T R I C K É H O M Ě Ř E N Í

Vrt : IN2-1 [ K. Vary - Rybáře ]

## 9 : Kumulovaný horizontální posun [ mm ]

hloubka [ m ]	0 .měření 8.12.2021	13 .měření 22.08.2022	14 .měření 25.01.2023	15 .měření 31.05.2024
0.00	0.00	6.88	7.19	10.62
	0	281	270	272
	0.00	3.20	4.20	4.05
	0	139	152	196
	0.00	2.77	3.68	2.76
2.50	0	116	132	151
	0.00	0.36	0.78	0.29
	0	21	131	235
	0.00	1.84	1.05	1.92
	0	282	262	287
5.00	0.00	2.33	1.53	2.32
	0	0	248	278
	0.00	1.75	1.26	1.83
	0	263	232	271
	0.00	0.87	0.74	1.23
7.50	0	299	286	0
	0.00	1.04	0.86	1.26
	0	308	302	279
	0.00	1.11	0.88	1.19
	0	314	311	284
10.00	0.00	1.13	0.90	1.20
	0	309	302	282
	0.00	1.23	0.97	1.21
	0	304	295	279
	0.00	1.13	0.77	0.91
	0	301	291	274
	0.00	0.99	0.48	0.43
	0	315	317	294
	0.00	0.97	0.46	0.43
	0	314	311	287
	0.00	0.83	0.32	0.28
	0	312	305	0
	0.00	0.44	0.13	0.33
	0	325	108	144
	0.00	0.36	0.22	0.39
	0	331	113	131
	0.00	0.16	0.58	0.91
	0	47	120	125
	0.00	0.48	0.33	0.30
	0	335	73	91
	0.00	1.01	0.47	0.37
	0	321	338	336
	0.00	0.69	0.28	0.21
	0	323	329	280
	0.00	0.24	0.49	0.57
	0	68	110	127
	0.00	0.73	0.96	1.08
	0	113	117	120

profil

12.00

## V Ý P I S I N K L I N O M E T R I C K É H O M Ě Ř E N Í

Vrt : IN2-1 [ K. Vary - Rybáře ]

## 1 : Horizontální složky [ mm ]

Rovina A [ azimut : 266 stupňů ]

hloubka [ m ]	0 .měření 8.12.2021	13 .měření 22.08.2022	14 .měření 25.01.2023	15 .měření 31.05.2024
0.00	7.10	15.68	15.95	16.25
	8.75	9.23	9.63	11.32
	7.65	5.40	5.65	6.22
	6.32	4.40	4.72	4.78
	5.25	4.70	4.85	4.78
2.50	4.72	5.30	5.13	5.18
	1.50	2.53	1.85	2.10
	1.75	1.70	1.75	1.75
	0.88	0.90	0.95	0.98
	-0.35	-0.43	-0.45	-0.38
5.00	-1.23	-1.38	-1.35	-1.25
	-2.13	-2.08	-1.98	-1.85
	-0.52	-0.25	-0.13	0.00
	0.73	0.73	0.70	0.70
	0.93	1.00	1.00	1.05
7.50	2.55	2.90	2.92	3.00
	5.10	5.18	5.18	5.20
	7.13	7.40	7.40	7.55
	8.73	8.43	8.57	8.32
	10.07	9.68	9.60	9.65
10.00	12.85	13.05	12.88	12.77
	14.35	14.95	14.93	14.98
	15.23	15.65	15.60	15.70
	15.73	15.07	14.90	14.82

## V Ý P I S I N K L I N O M E T R I C K É H O M Ě Ř E N Í

Vrt : IN2-1 [ K. Vary - Rybáře ]

## 1 : Horizontální složky [ mm ]

Rovina B [ azimut : 356 stupňů ]

hloubka [ m ]	0 .měření 8.12.2021	13 .měření 22.08.2022	14 .měření 25.01.2023	15 .měření 31.05.2024
0.00	5.95	10.27	10.30	10.95
	6.72	5.55	5.53	5.43
	6.88	5.18	4.78	4.53
	7.82	7.65	7.35	7.00
	9.50	10.00	9.90	9.70
2.50	10.25	10.35	10.48	10.55
	-0.22	-0.80	-1.17	-0.05
	-6.38	-6.60	-6.63	-6.65
	-7.93	-8.05	-8.05	-8.02
	-9.73	-9.68	-9.63	-9.68
5.00	-11.23	-11.20	-11.18	-11.18
	-11.00	-10.90	-10.85	-10.85
	-10.43	-10.52	-10.48	-10.50
	-10.00	-9.98	-9.95	-9.95
	-8.60	-8.48	-8.48	-8.45
7.50	-6.60	-6.38	-6.35	-6.32
	-4.32	-4.28	-4.28	-4.32
	-2.35	-2.13	-2.13	-2.05
	-1.65	-2.00	-2.05	-2.20
	-1.75	-2.13	-2.13	-2.13
10.00	0.93	1.17	1.13	1.23
	3.70	4.20	4.15	4.13
	5.63	6.03	5.93	5.85
	6.68	6.35	6.18	6.07



Projekt: KVary  
Měřený bod: IN2-1  
Soubor měření: IN2-1  
Datum: 08.12.2021 13:52

Krok	A 1	A 2	B 1	B 2
m	1.X	1.X	1.X	1.X
0.5	154	-130	122	-116
1	167	-183	139	-130
1.5	149	-157	134	-141
2	122	-131	153	-160
2.5	100	-110	187	-193
3	93	-96	202	-208
3.5	31	-29	-5	4
4	31	-39	-132	123
4.5	12	-23	-162	155
5	-8	6	-197	192
5.5	-29	20	-228	221
6	-46	39	-223	217
6.5	-14	7	-211	206
7	11	-18	-203	197
7.5	14	-23	-174	170
8	49	-53	-135	129
8.5	98	-106	-90	83
9	140	-145	-49	45
9.5	165	-184	-37	29
10	199	-204	-38	32
10.5	255	-259	16	-21
11	283	-291	72	-76
11.5	301	-308	110	-115
12	308	-321	131	-136

Projekt: KVary

Měřený bod: IN2-1

Soubor měření: IN2-1

Datum: 22.08.2022 14:00

Krok	A 1	A 2	B 1	B 2
m	1.X	1.X	1.X	1.X
0.5	312	-315	209	-202
1	182	-187	113	-109
1.5	106	-110	105	-102
2	84	-92	155	-151
2.5	91	-97	202	-198
3	105	-107	209	-205
3.5	35	-66	-14	18
4	32	-36	-130	134
4.5	14	-22	-159	163
5	-10	7	-191	196
5.5	-30	25	-222	226
6	-45	38	-216	220
6.5	-7	3	-208	213
7	13	-16	-197	202
7.5	16	-24	-167	172
8	56	-60	-125	130
8.5	101	-106	-83	88
9	146	-150	-40	45
9.5	163	-174	-38	42
10	192	-195	-40	45
10.5	258	-264	26	-21
11	296	-302	87	-81
11.5	311	-315	123	-118
12	298	-305	130	-124

Projekt: KVary

Měřený bod: IN2-1

Soubor měření: IN2-1

Datum: 25.01.2023 11:42

Krok	A 1	A 2	B 1	B 2
m	1.X	1.X	1.X	1.X
0.5	318	-320	205	-207
1	190	-195	109	-112
1.5	110	-116	94	-97
2	90	-99	145	-149
2.5	95	-99	196	-200
3	99	-106	208	-211
3.5	33	-41	-25	22
4	32	-38	-135	130
4.5	14	-24	-163	159
5	-10	8	-194	191
5.5	-30	24	-225	222
6	-44	35	-219	215
6.5	-5	0	-211	208
7	12	-16	-201	197
7.5	16	-24	-171	168
8	56	-61	-129	125
8.5	100	-107	-87	84
9	146	-150	-44	41
9.5	170	-173	-43	39
10	190	-194	-44	41
10.5	254	-261	21	-24
11	295	-302	81	-85
11.5	309	-315	117	-120
12	293	-303	122	-125

Projekt: KVary  
Měřený bod: IN2-1  
Soubor měření: IN2-1  
Datum: 31.05.2024 11:18

Krok	A 1	A 2	B 1	B 2
m	1.X	1.X	1.X	1.X
0.5	325	-325	220	-218
1	226	-227	108	-109
1.5	123	-126	90	-91
2	92	-99	139	-141
2.5	94	-97	193	-195
3	101	-106	210	-212
3.5	36	-48	-20	-18
4	33	-37	-134	132
4.5	16	-23	-161	160
5	-8	7	-194	193
5.5	-27	23	-224	223
6	-40	34	-218	216
6.5	-1	-1	-210	210
7	13	-15	-200	198
7.5	18	-24	-170	168
8	59	-61	-128	125
8.5	102	-106	-87	86
9	150	-152	-42	40
9.5	161	-172	-46	42
10	192	-194	-43	42
10.5	253	-258	24	-25
11	298	-301	82	-83
11.5	312	-316	116	-118
12	294	-299	121	-122



SG Geotechnika a.s.  
Geologická 988/4, 152 00 Praha 5

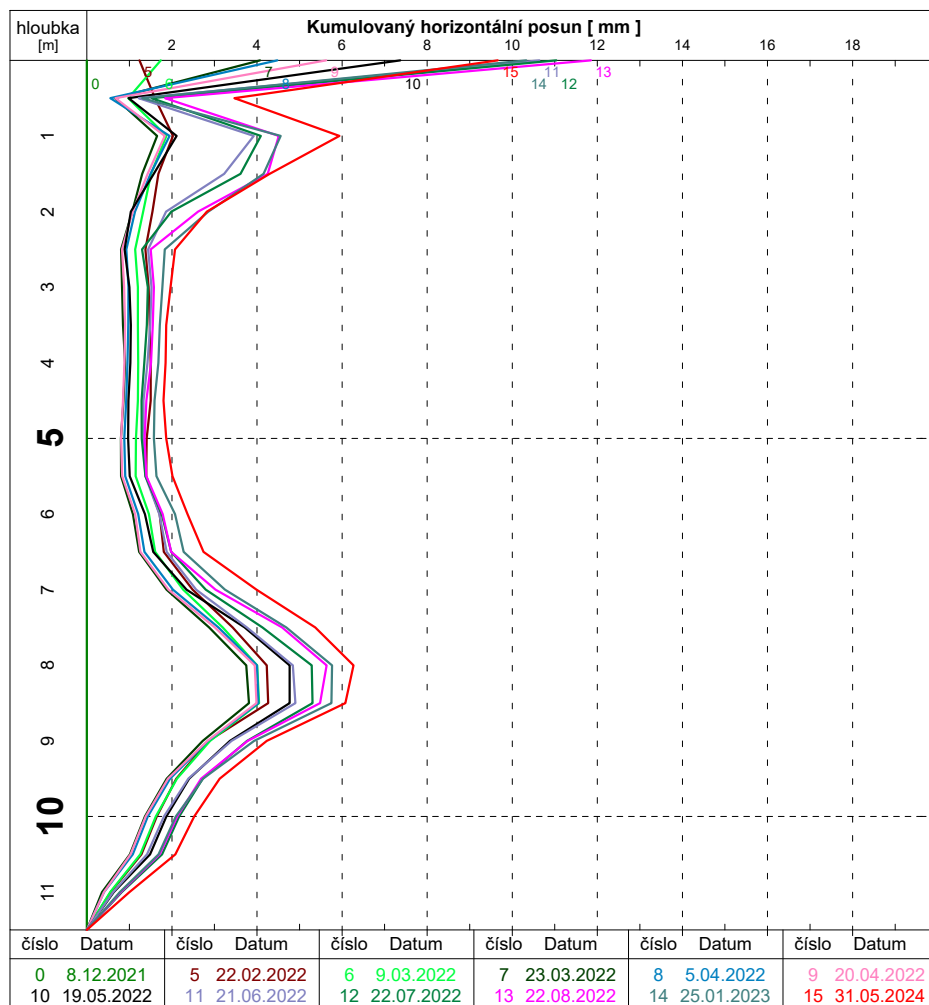
Objednatel:	GeoTec-GS a.s., Chmelová 2920/6, 106 00 Praha			
Název zakázky:	Karlovy Vary – inklinometrické měření			
Číslo zakázky:	Zpracoval:	Schválil:	Počet stran:	Datum:
24.0161.255Z28	Ing. Kvarda	Ing. Kvarda	9	květen 2024
VRT IN3-1				Číslo přílohy:
				4

# MĚŘENÍ PŘESNÉ INKLINOMETRIE

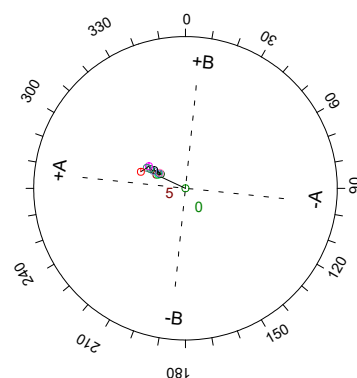
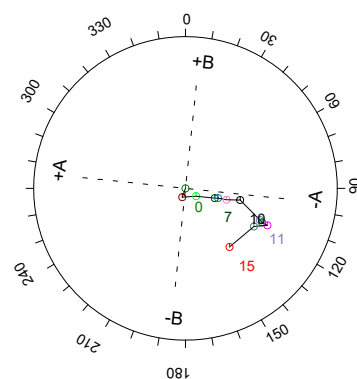
## Vektorové řešení

Vrt : IN3-1

Lokalita : K. Vary - Rybáře



Referenční hloubka : 11.5 [ m ]

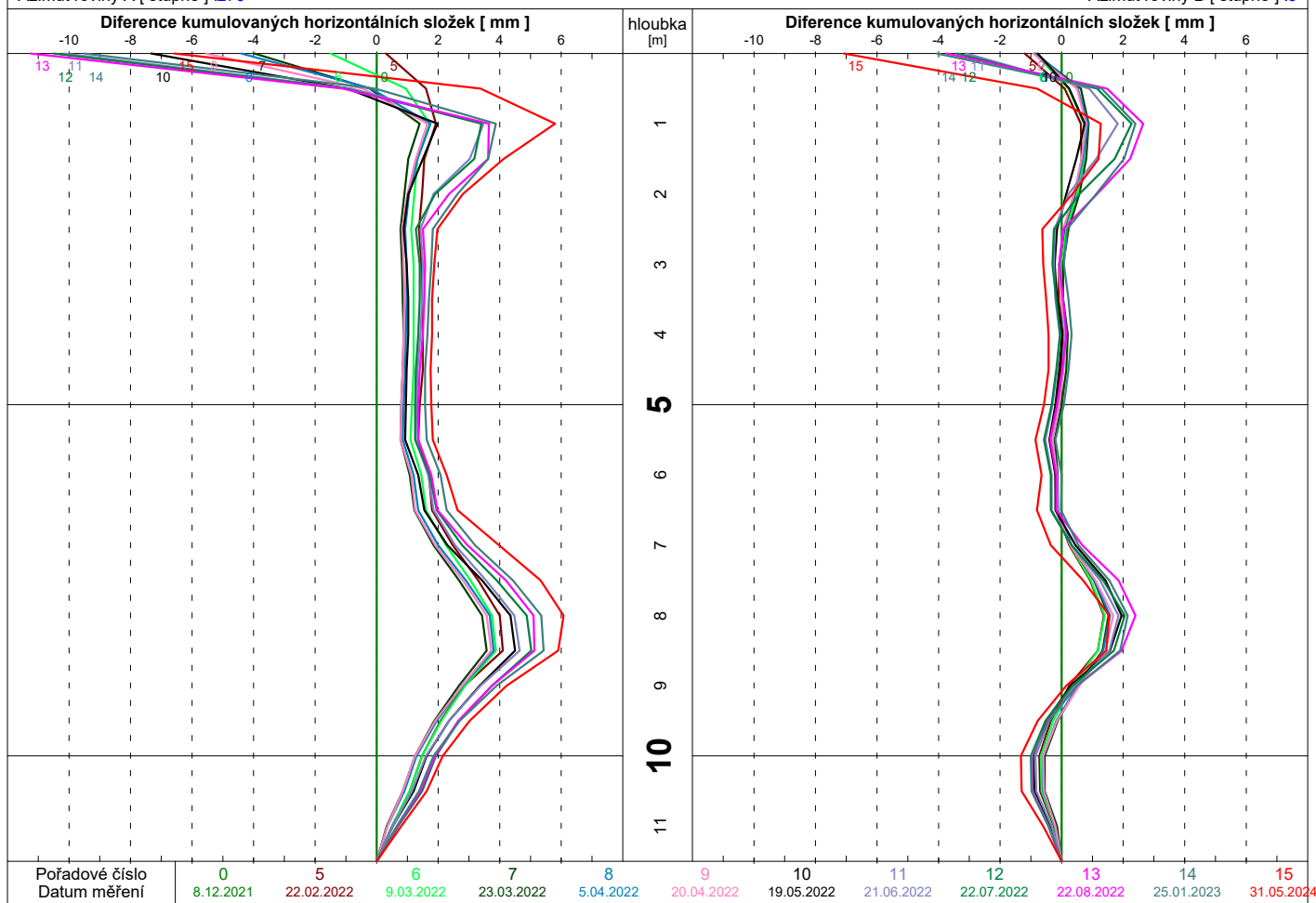


**Měření přesné inklinometrie**

Azimut roviny A [ stupně ] :276

Vrt : IN3-1 [ K. Vary - Rybáře ]

Azimut roviny B [ stupně ] :6



Referenční hloubka : 11.5 [ m ]

## V Ý P I S I N K L I N O M E T R I C K É H O M Ě Ř E N Í

Vrt : IN3-1 [ K. Vary - Rybáře ]

## 9 : Kumulovaný horizontální posun [ mm ]

hloubka [ m ]	0 .měření 8.12.2021	13 .měření 22.08.2022	14 .měření 25.01.2023	15 .měření 31.05.2024
0.00	0.00	11.85	10.33	9.66
	0	114	119	143
	0.00	1.84	1.30	3.47
	0	43	8	263
	0.00	4.51	4.56	5.94
2.50	0	312	308	288
	0.00	4.25	4.15	4.30
	0	308	305	292
	0.00	2.62	2.86	2.82
	0	302	299	283
5.00	0.00	1.50	1.83	2.07
	0	278	281	258
	0.00	1.58	1.78	1.97
	0	273	278	258
	0.00	1.55	1.71	1.87
7.50	0	278	284	260
	0.00	1.51	1.68	1.85
	0	282	287	263
	0.00	1.40	1.59	1.80
	0	277	284	262
10.00	0.00	1.36	1.58	1.87
	0	270	279	258
	0.00	1.40	1.64	2.01
	0	260	269	251
	0.00	1.78	2.08	2.37
	0	270	0	260
	0.00	1.98	2.28	2.74
	0	271	275	259
	0.00	3.03	3.25	3.99
	0	289	286	271
	0.00	4.59	4.69	5.37
	0	300	295	283
	0.00	5.64	5.77	6.27
	0	301	298	290
	0.00	5.48	5.75	6.08
	0	297	295	290
	0.00	3.78	3.93	4.23
	0	284	283	278
	0.00	2.69	2.73	3.12
	0	266	267	262
	0.00	2.12	2.09	2.53
	0	249	248	244
	0.00	1.71	1.69	2.08
	0	242	241	237
	0.00	0.80	0.78	1.00
	0	244	243	239

profil

11.50



## V Ý P I S I N K L I N O M E T R I C K É H O M Ě Ř E N Í

Vrt : IN3-1 [ K. Vary - Rybáře ]

## 1 : Horizontální složky [ mm ]

Rovina A [ azimut : 276 stupňů ]

hloubka [ m ]	0 .měření 8.12.2021	13 .měření 22.08.2022	14 .měření 25.01.2023	15 .měření 31.05.2024
0.00	-1.42	-11.57	-10.88	-11.38
	-0.47	-5.22	-4.40	-2.90
	0.00	0.03	0.25	1.67
	0.38	1.65	1.38	1.70
	0.00	0.85	0.80	0.82
2.50	-1.83	-1.90	-1.77	-1.73
	-2.53	-2.50	-2.45	-2.45
	-2.13	-2.08	-2.08	-2.13
	-1.55	-1.45	-1.48	-1.50
	-0.60	-0.55	-0.60	-0.63
5.00	-0.40	-0.40	-0.45	-0.45
	-2.97	-3.40	-3.42	-3.42
	-5.25	-5.45	-5.45	-5.60
	-6.57	-7.55	-7.50	-7.93
	-7.78	-9.02	-9.00	-9.13
7.50	-8.40	-9.30	-9.32	-9.15
	-8.35	-8.38	-8.43	-8.18
	-4.47	-3.10	-2.95	-2.80
	-3.30	-2.20	-2.10	-2.10
	-3.10	-2.35	-2.25	-2.22
10.00	-2.15	-1.67	-1.67	-1.63
	0.63	1.38	1.35	1.45
	5.85	6.53	6.50	6.65

## V Ý P I S I N K L I N O M E T R I C K É H O M Ě Ř E N Í

Vrt : IN3-1 [ K. Vary - Rybáře ]

## 1 : Horizontální složky [ mm ]

Rovina B [ azimut : 6 stupňů ]

hloubka [ m ]	0 .měření 8.12.2021	13 .měření 22.08.2022	14 .měření 25.01.2023	15 .měření 31.05.2024
0.00	-8.80	-14.00	-14.15	-15.07
	-7.45	-8.63	-8.55	-9.52
	-5.80	-5.38	-5.43	-5.72
	-4.63	-3.55	-3.72	-3.78
	-3.13	-2.03	-2.17	-2.15
2.50	-1.55	-1.42	-1.45	-1.58
	-0.17	-0.30	-0.32	-0.28
	1.83	1.73	1.73	1.75
	3.08	3.20	3.17	3.08
	3.72	3.90	3.88	3.88
5.00	4.03	4.25	4.30	4.30
	2.97	2.78	2.78	2.78
	2.13	2.13	2.15	2.28
	2.03	1.17	1.45	1.58
	2.15	0.98	1.15	1.10
7.50	2.88	2.33	2.28	2.03
	3.90	4.35	4.15	4.00
	6.35	7.80	7.75	7.65
	7.22	8.18	8.15	8.15
	6.80	7.30	7.35	7.35
10.00	6.88	6.88	6.88	6.85
	5.50	4.97	4.95	4.80
	1.15	0.73	0.73	0.55

Projekt: KVary  
Měřený bod: IN3-1  
Soubor měření: IN3-1  
Datum: 08.12.2021 14:06

Krok	A 1	A 2	B 1	B 2
m	1.X	1.X	1.X	1.X
0.5	-35	22	-178	174
1	-14	5	-152	146
1.5	-3	-3	-119	113
2	3	-12	-95	90
2.5	-3	-3	-65	60
3	-40	33	-34	28
3.5	-54	47	-6	1
4	-47	38	34	-39
4.5	-34	28	59	-64
5	-17	7	72	-77
5.5	-10	6	78	-83
6	-65	54	57	-62
6.5	-108	102	40	-45
7	-136	127	38	-43
7.5	-160	151	40	-46
8	-173	163	54	-61
8.5	-171	163	75	-81
9	-98	81	127	-127
9.5	-71	61	142	-147
10	-66	58	133	-139
10.5	-47	39	135	-140
11	9	-16	107	-113
11.5	113	-121	20	-26

Projekt: KVary  
Měřený bod: IN3-1  
Soubor měření: IN3-1  
Datum: 22.08.2022 14:07

Krok	A 1	A 2	B 1	B 2
m	1.X	1.X	1.X	1.X
0.5	-230	233	-278	282
1	-105	104	-172	173
1.5	-2	-3	-106	109
2	32	-34	-70	72
2.5	16	-18	-39	42
3	-39	37	-27	30
3.5	-52	48	-5	7
4	-44	39	36	-33
4.5	-30	28	65	-63
5	-13	9	79	-77
5.5	-10	6	86	-84
6	-69	67	57	-54
6.5	-112	106	44	-41
7	-153	149	25	-22
7.5	-183	178	21	-18
8	-188	184	48	-45
8.5	-170	165	88	-86
9	-66	58	157	-155
9.5	-46	42	165	-162
10	-49	45	147	-145
10.5	-35	32	139	-136
11	25	-30	101	-98
11.5	128	-133	17	-12

Projekt: KVary  
Měřený bod: IN3-1  
Soubor měření: IN3-1  
Datum: 25.01.2023 11:59

Krok	A 1	A 2	B 1	B 2
m	1.X	1.X	1.X	1.X
0.5	-221	214	-285	281
1	-89	87	-173	169
1.5	1	-9	-110	107
2	25	-30	-76	73
2.5	14	-18	-45	42
3	-38	33	-31	27
3.5	-53	45	-8	5
4	-44	39	33	-36
4.5	-32	27	62	-65
5	-15	9	76	-79
5.5	-13	5	84	-88
6	-71	66	54	-57
6.5	-113	105	41	-45
7	-154	146	28	-30
7.5	-184	176	22	-24
8	-190	183	43	-48
8.5	-172	165	81	-85
9	-67	51	149	-161
9.5	-45	39	161	-165
10	-48	42	145	-149
10.5	-36	31	136	-139
11	24	-30	97	-101
11.5	126	-134	13	-16

Projekt: KVary  
Měřený bod: IN3-1  
Soubor měření: IN3-1  
Datum: 31.05.2024 11:31

Krok	A 1	A 2	B 1	B 2
m	1.X	1.X	1.X	1.X
0.5	-230	225	-302	301
1	-60	56	-191	190
1.5	29	-38	-115	114
2	31	-37	-76	75
2.5	14	-19	-43	43
3	-37	32	-32	31
3.5	-53	45	-6	5
4	-45	40	35	-35
4.5	-33	27	61	-62
5	-15	10	77	-78
5.5	-13	5	85	-87
6	-71	66	55	-56
6.5	-116	108	45	-46
7	-163	154	31	-32
7.5	-185	180	21	-23
8	-186	180	40	-41
8.5	-167	160	79	-81
9	-64	48	150	-156
9.5	-45	39	162	-164
10	-47	42	146	-148
10.5	-36	29	136	-138
11	27	-31	95	-97
11.5	129	-137	10	-12

**KALIBRAČNÍ LISTY NAINSTALOVANÝCH ČIDEL**

Název zakázky:	Karlovy Vary – Nové Sedlo u Lokte – Sokolov, GTP a STP		
Číslo zakázky:	2023 - 345	Objednatel:	METROPROJEKT Praha a.s.
Datum:	06 / 2024	Zpracoval:	Mgr. Petr Karlín
Počet stran:	69	Schválil:	Mgr. Filip Dudík



# CALIBRATION REPORT

N. 2407635

**Serial Number:** S242161

**Product Code:** 0LTIBV10102\_10

**Model:** LT-INCLIBUS 1 VERTICAL SENSOR,  $\pm 10^\circ$

**Type:** Digital

**Calibration Date:** 05/06/2024 09:54

**Job Number:** 24-00526

**Project Code:** Address #01

## Test Conditions

**Temperature:**  $23 \pm 0.5^\circ\text{C}$

**Humidity:**  $32 \pm 10\%$

**Barometric Pressure:**  $988 \pm 5\text{ hPa}$

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: according to the instruments model in the current revision or in previous versions in case of discontinued instruments)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

**The metrological traceability of the reference standards is guaranteed by the calibration certificates issued by laboratories accredited by an accreditation body signatory of Mutual Recognition Agreements (EA - European cooperative for Accreditation, IAF - International Accreditation Forum, ILAC - International Laboratory Accreditation Cooperation for Mutual Recognition Agreements)**  
**Sisgeo's Standard References:**

Electronic level 210: Microplan, LE602, C.T. LAT172LE0002/22

Angular standard  $1^\circ$  223: Microplan BELAC 1909-07906

Angular standard  $2.5^\circ$  222: Microplan BELAC 1909-07894

Angular standard  $5^\circ$  221: Microplan BELAC 1909-07893

Angular standard  $10^\circ$  218: Microplan BELAC 2007-07377

Angular standard  $20^\circ$  219: Microplan BELAC 2007-07378

Angular standard  $30^\circ$  220: Microplan BELAC 2007-07376

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

**Sensitivity <sup>(1)</sup>**

9.9991E-01 [sina/sina]

1.0000E+00 [sina/sina]

**Maximum Residual Error <sup>(2)</sup>**

0.0242 [%FS]

0.0092 [%FS]

**MPE = 0.05 [%FS]**

**CRITERIA**

$|\text{Max Residual Err.}| + U < |\text{MPE}|$

**COMPLIANT**

To the Datasheet

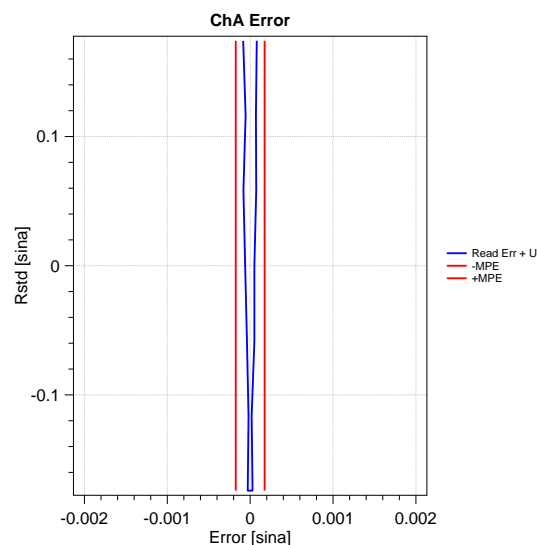
Issue Date: 05.06.2024

CQE:

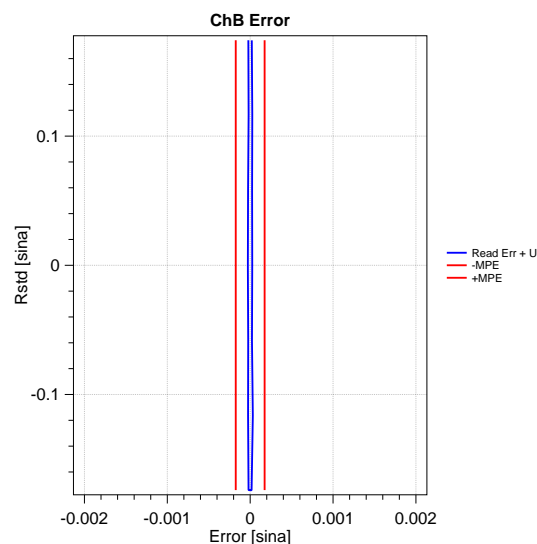
*Mario Bruni*



Ch. A		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.174169	0.000018	0.174107
0.116465	0.000018	0.116413
0.058341	0.000018	0.058286
0.000033	0.000018	0.000000
-0.058285	0.000018	-0.058319
-0.116407	0.000018	-0.116407
-0.174075	0.000018	-0.174086
-0.174203	0.000018	-0.174191
-0.116491	0.000018	-0.116488
-0.058351	0.000018	-0.058329
-0.000037	0.000018	0.000006
0.058273	0.000018	0.058337
0.116384	0.000018	0.116421
0.174066	0.000018	0.174133



Ch. B		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.174215	0.000014	0.174223
0.116512	0.000014	0.116517
0.058398	0.000014	0.058410
0.000089	0.000014	0.000103
-0.058228	0.000014	-0.058218
-0.116346	0.000014	-0.116334
-0.174009	0.000014	-0.174003
-0.174137	0.000014	-0.174140
-0.116422	0.000014	-0.116440
-0.058281	0.000014	-0.058289
0.000031	0.000014	0.000020
0.058345	0.000014	0.058336
0.116454	0.000014	0.116442
0.174134	0.000014	0.174129



- LEGEND**
- (1): Linear factors obtained by means of linear formula according to the least squares method.
  - (2): The errors shows related to residual error on the calibration step applying:
    - linear/polynomial correction + Uncertainty (for analog instrument);
    - polynomial correction (internally applied) + Uncertainty (for digital instrument).
  - (3): Values calculated using linear correction (for analog instrument).
  - (4): Polynomial factors obtained by means of linear multiply regression formula (for analog instrument).
  - (5): Values calculated using polynomial correction (for analog instrument).
  - (6): Reference readings.
  - (7): Instruments readings.

- NOTES:**
- a) % F.S. error is calculated on whole range.
  - b) Resulting error depends on the effects of repeatability (for digital instrument) linearity and hysteresis.
  - c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty (repeatability).

Configured in "Normal mode" (SISGEO MODBUS protocol)



# CALIBRATION REPORT

N. 2407636

**Serial Number:** S242162

**Product Code:** 0LTIBV10102\_10

**Model:** LT-INCLIBUS 1 VERTICAL SENSOR,  $\pm 10^\circ$

**Type:** Digital

**Calibration Date:** 05/06/2024 09:54

**Job Number:** 24-00526

**Project Code:** Address #02

## Test Conditions

**Temperature:**  $23 \pm 0.5^\circ\text{C}$

**Humidity:**  $32 \pm 10\%$

**Barometric Pressure:**  $988 \pm 5\text{ hPa}$

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: according to the instruments model in the current revision or in previous versions in case of discontinued instruments)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

**The metrological traceability of the reference standards is guaranteed by the calibration certificates issued by laboratories accredited by an accreditation body signatory of Mutual Recognition Agreements (EA - European cooperative for Accreditation, IAF - International Accreditation Forum, ILAC - International Laboratory Accreditation Cooperation for Mutual Recognition Agreements)**

**Sisgeo's Standard References:**

Electronic level 210: Microplan, LE602, C.T. LAT172LE0002/22

Angular standard  $1^\circ$  223: Microplan BELAC 1909-07906

Angular standard  $2.5^\circ$  222: Microplan BELAC 1909-07894

Angular standard  $5^\circ$  221: Microplan BELAC 1909-07893

Angular standard  $10^\circ$  218: Microplan BELAC 2007-07377

Angular standard  $20^\circ$  219: Microplan BELAC 2007-07378

Angular standard  $30^\circ$  220: Microplan BELAC 2007-07376

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

**Sensitivity <sup>(1)</sup>**

9.9985E-01 [sina/sina]

1.0000E+00 [sina/sina]

**Maximum Residual Error <sup>(2)</sup>**

0.0266 [%FS]

0.0093 [%FS]

**MPE = 0.05 [%FS]**

**CRITERIA**

$|\text{Max Residual Err.}| + U < |\text{MPE}|$

**COMPLIANT**

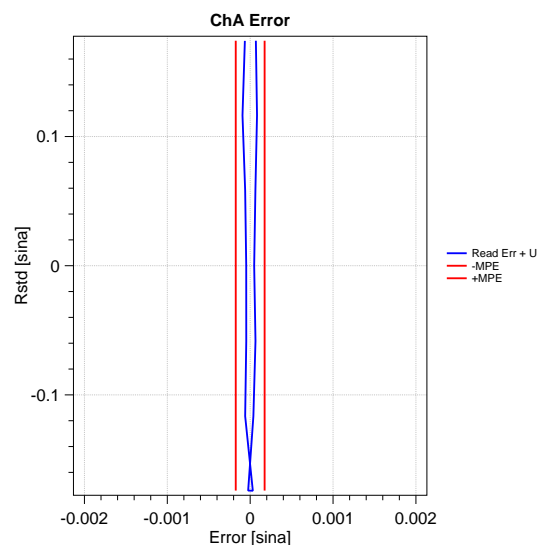
To the Datasheet

Issue Date: 05.06.2024

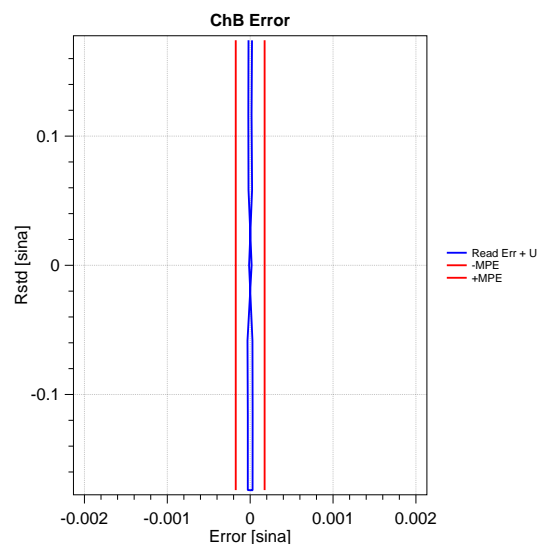
CQE:

*Mario Bruni*

Ch. A		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.174169	0.000023	0.174124
0.116465	0.000023	0.116406
0.058341	0.000023	0.058302
0.000033	0.000023	0.000008
-0.058285	0.000023	-0.058326
-0.116407	0.000023	-0.116422
-0.174075	0.000023	-0.174074
-0.174203	0.000023	-0.174211
-0.116491	0.000023	-0.116454
-0.058351	0.000023	-0.058327
-0.000037	0.000023	-0.000013
0.058273	0.000023	0.058310
0.116384	0.000023	0.116453
0.174066	0.000023	0.174106



Ch. B		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.174215	0.000013	0.174222
0.116512	0.000013	0.116522
0.058398	0.000013	0.058406
0.000089	0.000013	0.000084
-0.058228	0.000013	-0.058209
-0.116346	0.000013	-0.116330
-0.174009	0.000013	-0.173994
-0.174137	0.000013	-0.174153
-0.116422	0.000013	-0.116438
-0.058281	0.000013	-0.058296
0.000031	0.000013	0.000032
0.058345	0.000013	0.058335
0.116454	0.000013	0.116450
0.174134	0.000013	0.174125



- LEGEND**
- (1): Linear factors obtained by means of linear formula according to the least squares method.
  - (2): The errors shows related to residual error on the calibration step applying:
    - linear/polynomial correction + Uncertainty (for analog instrument);
    - polynomial correction (internally applied) + Uncertainty (for digital instrument).
  - (3): Values calculated using linear correction (for analog instrument).
  - (4): Polynomial factors obtained by means of linear multiply regression formula (for analog instrument).
  - (5): Values calculated using polynomial correction (for analog instrument).
  - (6): Reference readings.
  - (7): Instruments readings.

- NOTES:**
- a) % F.S. error is calculated on whole range.
  - b) Resulting error depends on the effects of repeatability (for digital instrument) linearity and hysteresis.
  - c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty (repeatability).

Configured in "Normal mode" (SISGEO MODBUS protocol)



# CALIBRATION REPORT

N. 2407637

**Serial Number:** S242163

**Product Code:** 0LTIBV10102\_10

**Model:** LT-INCLIBUS 1 VERTICAL SENSOR,  $\pm 10^\circ$

**Type:** Digital

**Calibration Date:** 05/06/2024 09:54

**Job Number:** 24-00526

**Project Code:** Address #03

## Test Conditions

**Temperature:**  $23 \pm 0.5^\circ\text{C}$

**Humidity:**  $32 \pm 10\%$

**Barometric Pressure:**  $988 \pm 5\text{ hPa}$

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: according to the instruments model in the current revision or in previous versions in case of discontinued instruments)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

**The metrological traceability of the reference standards is guaranteed by the calibration certificates issued by laboratories accredited by an accreditation body signatory of Mutual Recognition Agreements (EA - European cooperative for Accreditation, IAF - International Accreditation Forum, ILAC - International Laboratory Accreditation Cooperation for Mutual Recognition Agreements)**  
**Sisgeo's Standard References:**

Electronic level 210: Microplan, LE602, C.T. LAT172LE0002/22

Angular standard  $1^\circ$  223: Microplan BELAC 1909-07906

Angular standard  $2.5^\circ$  222: Microplan BELAC 1909-07894

Angular standard  $5^\circ$  221: Microplan BELAC 1909-07893

Angular standard  $10^\circ$  218: Microplan BELAC 2007-07377

Angular standard  $20^\circ$  219: Microplan BELAC 2007-07378

Angular standard  $30^\circ$  220: Microplan BELAC 2007-07376

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

<b>Sensitivity <sup>(1)</sup></b>	9.9992E-01 [sina/sina]
	1.0000E+00 [sina/sina]

<b>Maximum Residual Error <sup>(2)</sup></b>	0.0251 [%FS]
	0.0090 [%FS]

**MPE = 0.05 [%FS]**

## CRITERIA

$|\text{Max Residual Err.}| + U < |\text{MPE}|$

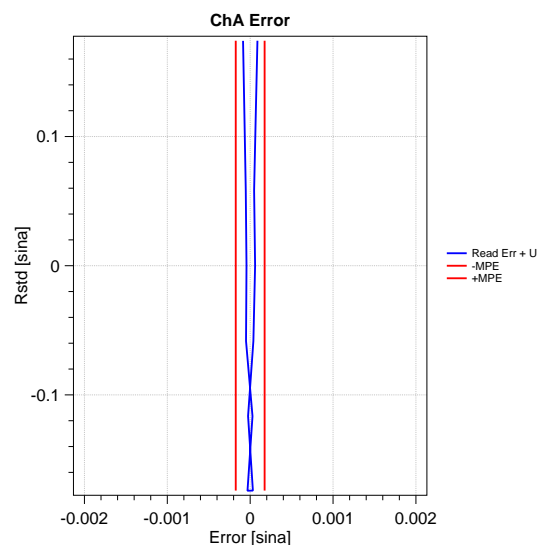
## COMPLIANT

To the Datasheet

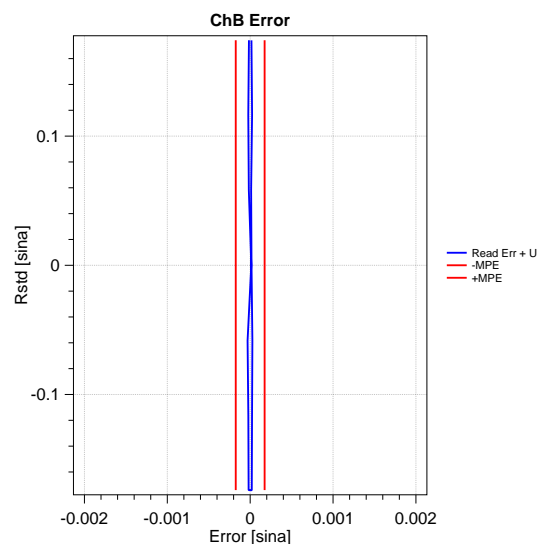
Issue Date: 05.06.2024

CQE: *Mario Bruni*

Ch. A		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.174169	0.000023	0.174105
0.116465	0.000023	0.116421
0.058341	0.000023	0.058317
0.000033	0.000023	-0.000003
-0.058285	0.000023	-0.058301
-0.116407	0.000023	-0.116404
-0.174075	0.000023	-0.174085
-0.174203	0.000023	-0.174194
-0.116491	0.000023	-0.116495
-0.058351	0.000023	-0.058324
-0.000037	0.000023	-0.000016
0.058273	0.000023	0.058303
0.116384	0.000023	0.116430
0.174066	0.000023	0.174129



Ch. B		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.174215	0.000011	0.174219
0.116512	0.000011	0.116525
0.058398	0.000011	0.058404
0.000089	0.000011	0.000086
-0.058228	0.000011	-0.058207
-0.116346	0.000011	-0.116334
-0.174009	0.000011	-0.174001
-0.174137	0.000011	-0.174146
-0.116422	0.000011	-0.116434
-0.058281	0.000011	-0.058297
0.000031	0.000011	0.000026
0.058345	0.000011	0.058344
0.116454	0.000011	0.116442
0.174134	0.000011	0.174129



- LEGEND**
- (1): Linear factors obtained by means of linear formula according to the least squares method.
  - (2): The errors shows related to residual error on the calibration step applying:
    - linear/polynomial correction + Uncertainty (for analog instrument);
    - polynomial correction (internally applied) + Uncertainty (for digital instrument).
  - (3): Values calculated using linear correction (for analog instrument).
  - (4): Polynomial factors obtained by means of linear multiply regression formula (for analog instrument).
  - (5): Values calculated using polynomial correction (for analog instrument).
  - (6): Reference readings.
  - (7): Instruments readings.

- NOTES:**
- a) % F.S. error is calculated on whole range.
  - b) Resulting error depends on the effects of repeatability (for digital instrument) linearity and hysteresis.
  - c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty (repeatability).

Configured in "Normal mode" (SISGEO MODBUS protocol)



# CALIBRATION REPORT

N. 2407638

**Serial Number:** S242164

**Product Code:** 0LTIBV10102\_10

**Model:** LT-INCLIBUS 1 VERTICAL SENSOR,  $\pm 10^\circ$

**Type:** Digital

**Calibration Date:** 05/06/2024 09:54

**Job Number:** 24-00526

**Project Code:** Address #04

## Test Conditions

**Temperature:**  $23 \pm 0.5^\circ\text{C}$

**Humidity:**  $32 \pm 10\%$

**Barometric Pressure:**  $988 \pm 5\text{ hPa}$

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: according to the instruments model in the current revision or in previous versions in case of discontinued instruments)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

**The metrological traceability of the reference standards is guaranteed by the calibration certificates issued by laboratories accredited by an accreditation body signatory of Mutual Recognition Agreements (EA - European cooperative for Accreditation, IAF - International Accreditation Forum, ILAC - International Laboratory Accreditation Cooperation for Mutual Recognition Agreements)**  
**Sisgeo's Standard References:**

Electronic level 210: Microplan, LE602, C.T. LAT172LE0002/22

Angular standard  $1^\circ$  223: Microplan BELAC 1909-07906

Angular standard  $2.5^\circ$  222: Microplan BELAC 1909-07894

Angular standard  $5^\circ$  221: Microplan BELAC 1909-07893

Angular standard  $10^\circ$  218: Microplan BELAC 2007-07377

Angular standard  $20^\circ$  219: Microplan BELAC 2007-07378

Angular standard  $30^\circ$  220: Microplan BELAC 2007-07376

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

**Sensitivity <sup>(1)</sup>**

9.9989E-01 [sina/sina]

1.0000E+00 [sina/sina]

**Maximum Residual Error <sup>(2)</sup>**

0.0277 [%FS]

0.0095 [%FS]

**MPE = 0.05 [%FS]**

**CRITERIA**

$|\text{Max Residual Err.}| + U < |\text{MPE}|$

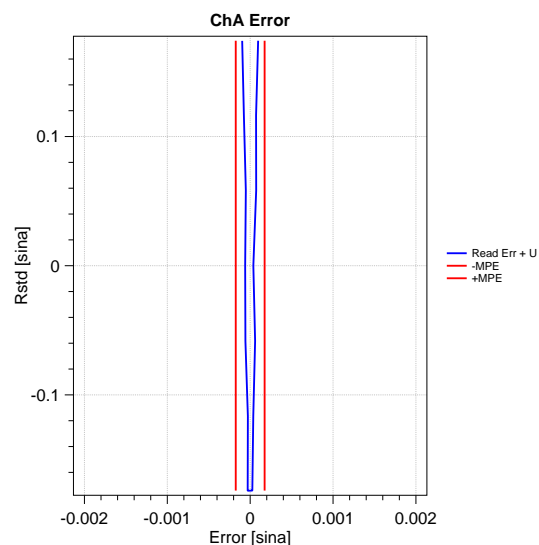
**COMPLIANT**

To the Datasheet

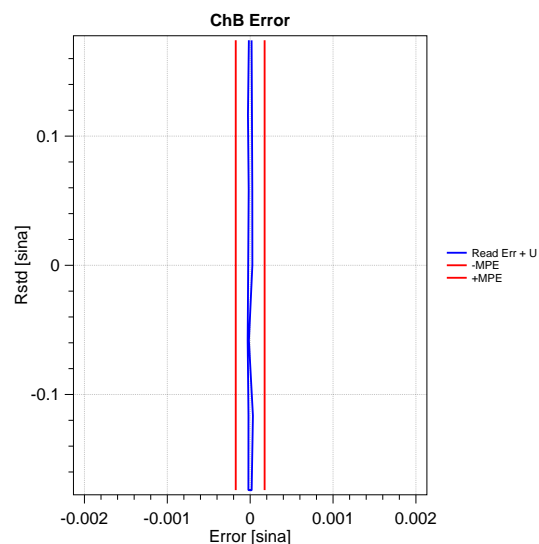
Issue Date: 05.06.2024

CQE: *Mario Bruni*

Ch. A		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.174169	0.000025	0.174098
0.116465	0.000025	0.116419
0.058341	0.000025	0.058294
0.000033	0.000025	0.000019
-0.058285	0.000025	-0.058320
-0.116407	0.000025	-0.116419
-0.174075	0.000025	-0.174076
-0.174203	0.000025	-0.174197
-0.116491	0.000025	-0.116488
-0.058351	0.000025	-0.058318
-0.000037	0.000025	-0.000001
0.058273	0.000025	0.058301
0.116384	0.000025	0.116435
0.174066	0.000025	0.174137



Ch. B		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.174215	0.000015	0.174215
0.116512	0.000015	0.116524
0.058398	0.000015	0.058401
0.000089	0.000015	0.000097
-0.058228	0.000015	-0.058213
-0.116346	0.000015	-0.116341
-0.174009	0.000015	-0.174003
-0.174137	0.000015	-0.174140
-0.116422	0.000015	-0.116439
-0.058281	0.000015	-0.058281
0.000031	0.000015	0.000020
0.058345	0.000015	0.058335
0.116454	0.000015	0.116448
0.174134	0.000015	0.174133



- LEGEND**
- (1): Linear factors obtained by means of linear formula according to the least squares method.
  - (2): The errors shows related to residual error on the calibration step applying:
    - linear/polynomial correction + Uncertainty (for analog instrument);
    - polynomial correction (internally applied) + Uncertainty (for digital instrument).
  - (3): Values calculated using linear correction (for analog instrument).
  - (4): Polynomial factors obtained by means of linear multiply regression formula (for analog instrument).
  - (5): Values calculated using polynomial correction (for analog instrument).
  - (6): Reference readings.
  - (7): Instruments readings.

- NOTES:**
- a) % F.S. error is calculated on whole range.
  - b) Resulting error depends on the effects of repeatability (for digital instrument) linearity and hysteresis.
  - c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty (repeatability).

Configured in "Normal mode" (SISGEO MODBUS protocol)



# CALIBRATION REPORT

N. 2407639

**Serial Number:** S242165

**Product Code:** 0LTIBV10102\_10

**Model:** LT-INCLIBUS 1 VERTICAL SENSOR,  $\pm 10^\circ$

**Type:** Digital

**Calibration Date:** 05/06/2024 09:54

**Job Number:** 24-00526

**Project Code:** Address #05

## Test Conditions

**Temperature:**  $23 \pm 0.5^\circ\text{C}$

**Humidity:**  $32 \pm 10\%$

**Barometric Pressure:**  $988 \pm 5\text{ hPa}$

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: according to the instruments model in the current revision or in previous versions in case of discontinued instruments)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

**The metrological traceability of the reference standards is guaranteed by the calibration certificates issued by laboratories accredited by an accreditation body signatory of Mutual Recognition Agreements (EA - European cooperative for Accreditation, IAF - International Accreditation Forum, ILAC - International Laboratory Accreditation Cooperation for Mutual Recognition Agreements)**  
**Sisgeo's Standard References:**

Electronic level 210: Microplan, LE602, C.T. LAT172LE0002/22

Angular standard  $1^\circ$  223: Microplan BELAC 1909-07906

Angular standard  $2.5^\circ$  222: Microplan BELAC 1909-07894

Angular standard  $5^\circ$  221: Microplan BELAC 1909-07893

Angular standard  $10^\circ$  218: Microplan BELAC 2007-07377

Angular standard  $20^\circ$  219: Microplan BELAC 2007-07378

Angular standard  $30^\circ$  220: Microplan BELAC 2007-07376

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

**Sensitivity <sup>(1)</sup>**

9.9986E-01 [sina/sina]

9.9999E-01 [sina/sina]

**Maximum Residual Error <sup>(2)</sup>**

0.0295 [%FS]

0.0088 [%FS]

**MPE = 0.05 [%FS]**

## CRITERIA

$|\text{Max Residual Err.}| + U < |\text{MPE}|$

## COMPLIANT

To the Datasheet

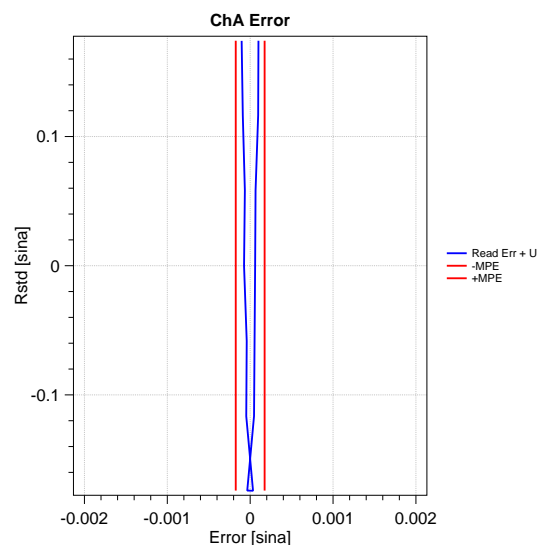
Issue Date: 05.06.2024

CQE:

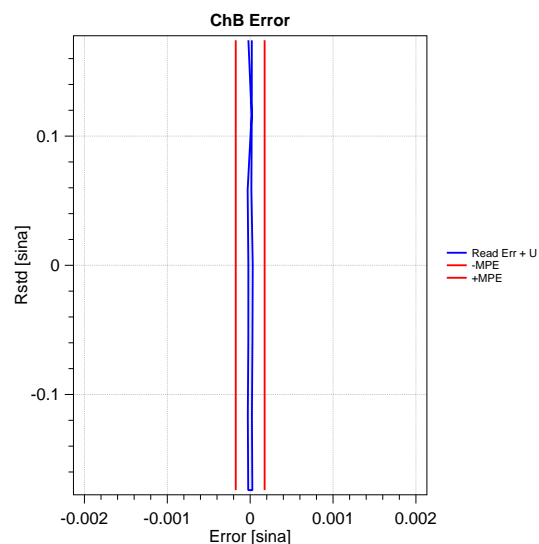
*Mario Bruni*



Ch. A		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.174169	0.000028	0.174097
0.116465	0.000028	0.116396
0.058341	0.000028	0.058304
0.000033	0.000028	0.000001
-0.058285	0.000028	-0.058311
-0.116407	0.000028	-0.116425
-0.174075	0.000028	-0.174068
-0.174203	0.000028	-0.174209
-0.116491	0.000028	-0.116471
-0.058351	0.000028	-0.058337
-0.000037	0.000028	0.000009
0.058273	0.000028	0.058310
0.116384	0.000028	0.116445
0.174066	0.000028	0.174141



Ch. B		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.174215	0.000014	0.174223
0.116512	0.000014	0.116509
0.058398	0.000014	0.058415
0.000089	0.000014	0.000097
-0.058228	0.000014	-0.058219
-0.116346	0.000014	-0.116331
-0.174009	0.000014	-0.173999
-0.174137	0.000014	-0.174149
-0.116422	0.000014	-0.116429
-0.058281	0.000014	-0.058295
0.000031	0.000014	0.000014
0.058345	0.000014	0.058344
0.116454	0.000014	0.116448
0.174134	0.000014	0.174128



- LEGEND**
- (1): Linear factors obtained by means of linear formula according to the least squares method.
  - (2): The errors shows related to residual error on the calibration step applying:
    - linear/polynomial correction + Uncertainty (for analog instrument);
    - polynomial correction (internally applied) + Uncertainty (for digital instrument).
  - (3): Values calculated using linear correction (for analog instrument).
  - (4): Polynomial factors obtained by means of linear multiply regression formula (for analog instrument).
  - (5): Values calculated using polynomial correction (for analog instrument).
  - (6): Reference readings.
  - (7): Instruments readings.

- NOTES:**
- a) % F.S. error is calculated on whole range.
  - b) Resulting error depends on the effects of repeatability (for digital instrument) linearity and hysteresis.
  - c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty (repeatability).

Configured in "Normal mode" (SISGEO MODBUS protocol)



# CALIBRATION REPORT

N. 2404918

**Serial Number:** S241236

**Product Code:** 0LTIBV10102\_10

**Model:** LT-INCLIBUS 1 VERTICAL SENSOR,  $\pm 10^\circ$

**Type:** Digital

**Calibration Date:** 04/04/2024 13:47

**Job Number:** 24-00307

**Project Code:** Address #01

## Test Conditions

**Temperature:**  $23 \pm 0.5^\circ\text{C}$

**Humidity:**  $35 \pm 10\%$

**Barometric Pressure:**  $1005 \pm 5\text{ hPa}$

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: according to the instruments model in the current revision or in previous versions in case of discontinued instruments)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

**The metrological traceability of the reference standards is guaranteed by the calibration certificates issued by laboratories accredited by an accreditation body signatory of Mutual Recognition Agreements (EA - European cooperative for Accreditation, IAF - International Accreditation Forum, ILAC - International Laboratory Accreditation Cooperation for Mutual Recognition Agreements)**  
**Sisgeo's Standard References:**

Electronic level 210: Microplan, LE602, C.T. LAT172LE0002/22

Angular standard  $1^\circ$  223: Microplan BELAC 1909-07906

Angular standard  $2.5^\circ$  222: Microplan BELAC 1909-07894

Angular standard  $5^\circ$  221: Microplan BELAC 1909-07893

Angular standard  $10^\circ$  218: Microplan BELAC 2007-07377

Angular standard  $20^\circ$  219: Microplan BELAC 2007-07378

Angular standard  $30^\circ$  220: Microplan BELAC 2007-07376

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

**Sensitivity <sup>(1)</sup>**

9.9999E-01 [sina/sina]

1.0000E+00 [sina/sina]

**Maximum Residual Error <sup>(2)</sup>**

0.0164 [%FS]

0.0111 [%FS]

**MPE = 0.05 [%FS]**

## CRITERIA

$|\text{Max Residual Err.}| + U < |\text{MPE}|$

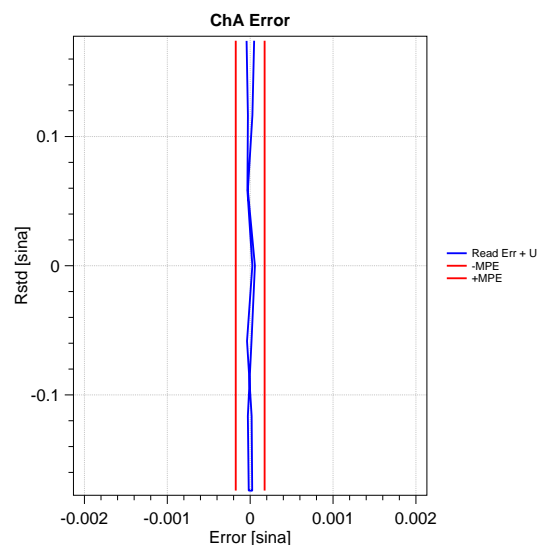
## COMPLIANT

To the Datasheet

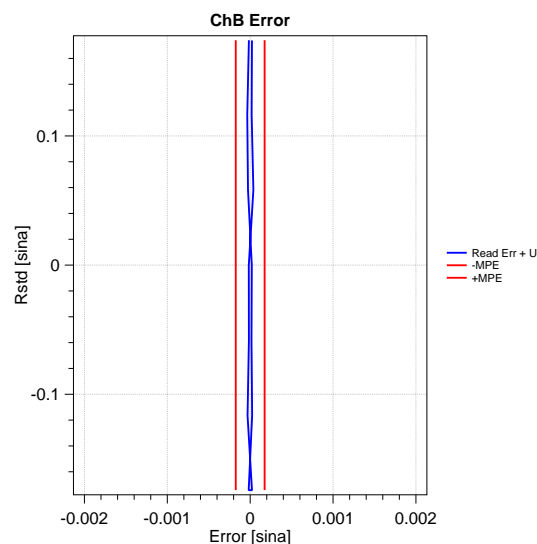
Issue Date: 04.04.2024

CQE: *Mario Bruni*

Ch. A		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.174173	0.000014	0.174139
0.116474	0.000014	0.116461
0.058385	0.000014	0.058399
0.000052	0.000014	0.000008
-0.058262	0.000014	-0.058265
-0.116353	0.000014	-0.116338
-0.174047	0.000014	-0.174043
-0.174184	0.000014	-0.174195
-0.116449	0.000014	-0.116453
-0.058333	0.000014	-0.058309
-0.000025	0.000014	-0.000037
0.058305	0.000014	0.058324
0.116384	0.000014	0.116397
0.174066	0.000014	0.174096



Ch. B		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.174081	0.000015	0.174081
0.116367	0.000015	0.116388
0.058266	0.000015	0.058278
-0.000060	0.000015	-0.000064
-0.058373	0.000015	-0.058373
-0.116472	0.000015	-0.116480
-0.174167	0.000015	-0.174164
-0.174306	0.000015	-0.174313
-0.116567	0.000015	-0.116550
-0.058456	0.000015	-0.058455
-0.000147	0.000015	-0.000146
0.058182	0.000015	0.058159
0.116265	0.000015	0.116262
0.173938	0.000015	0.173932



- LEGEND**
- (1): Linear factors obtained by means of linear formula according to the least squares method.
  - (2): The errors shows related to residual error on the calibration step applying:
    - linear/polynomial correction + Uncertainty (for analog instrument);
    - polynomial correction (internally applied) + Uncertainty (for digital instrument).
  - (3): Values calculated using linear correction (for analog instrument).
  - (4): Polynomial factors obtained by means of linear multiply regression formula (for analog instrument).
  - (5): Values calculated using polynomial correction (for analog instrument).
  - (6): Reference readings.
  - (7): Instruments readings.

- NOTES:**
- a) % F.S. error is calculated on whole range.
  - b) Resulting error depends on the effects of repeatability (for digital instrument) linearity and hysteresis.
  - c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty (repeatability).

Configured in "Normal mode" (SISGEO MODBUS protocol)



# CALIBRATION REPORT

N. 2404919

**Serial Number:** S241237

**Product Code:** 0LTIBV10102\_10

**Model:** LT-INCLIBUS 1 VERTICAL SENSOR,  $\pm 10^\circ$

**Type:** Digital

**Calibration Date:** 04/04/2024 13:47

**Job Number:** 24-00307

**Project Code:** Address #02

## Test Conditions

**Temperature:**  $23 \pm 0.5^\circ\text{C}$

**Humidity:**  $35 \pm 10\%$

**Barometric Pressure:**  $1005 \pm 5\text{ hPa}$

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: according to the instruments model in the current revision or in previous versions in case of discontinued instruments)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

**The metrological traceability of the reference standards is guaranteed by the calibration certificates issued by laboratories accredited by an accreditation body signatory of Mutual Recognition Agreements (EA - European cooperative for Accreditation, IAF - International Accreditation Forum, ILAC - International Laboratory Accreditation Cooperation for Mutual Recognition Agreements)**

**Sisgeo's Standard References:**

Electronic level 210: Microplan, LE602, C.T. LAT172LE0002/22

Angular standard  $1^\circ$  223: Microplan BELAC 1909-07906

Angular standard  $2.5^\circ$  222: Microplan BELAC 1909-07894

Angular standard  $5^\circ$  221: Microplan BELAC 1909-07893

Angular standard  $10^\circ$  218: Microplan BELAC 2007-07377

Angular standard  $20^\circ$  219: Microplan BELAC 2007-07378

Angular standard  $30^\circ$  220: Microplan BELAC 2007-07376

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

**Sensitivity <sup>(1)</sup>**

9.9997E-01 [sina/sina]

9.9999E-01 [sina/sina]

**Maximum Residual Error <sup>(2)</sup>**

0.0126 [%FS]

0.0068 [%FS]

**MPE = 0.05 [%FS]**

**CRITERIA**

$|\text{Max Residual Err.}| + U < |\text{MPE}|$

**COMPLIANT**

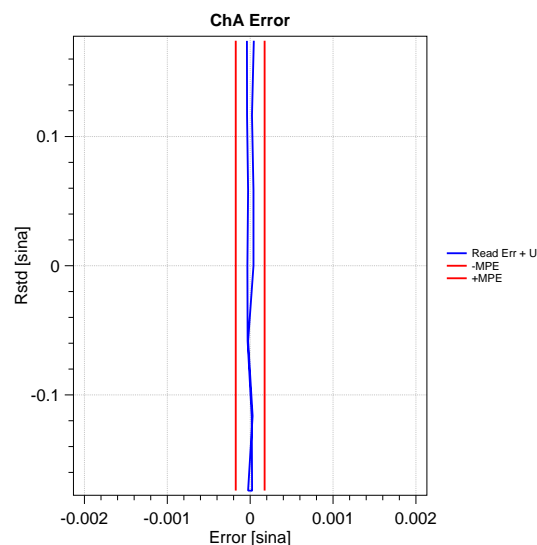
To the Datasheet

Issue Date: 04.04.2024

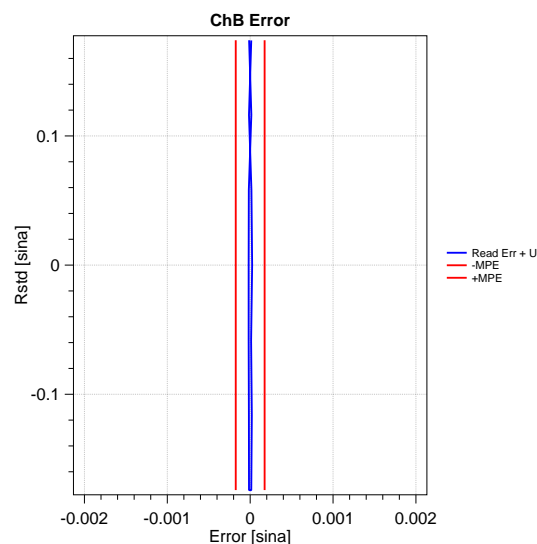
CQE:

*Mario Bruni*

Ch. A		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.174173	0.000018	0.174148
0.116474	0.000018	0.116471
0.058385	0.000018	0.058364
0.000052	0.000018	0.000030
-0.058262	0.000018	-0.058256
-0.116353	0.000018	-0.116363
-0.174047	0.000018	-0.174040
-0.174184	0.000018	-0.174189
-0.116449	0.000018	-0.116449
-0.058333	0.000018	-0.058321
-0.000025	0.000018	-0.000009
0.058305	0.000018	0.058311
0.116384	0.000018	0.116403
0.174066	0.000018	0.174086



Ch. B		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.174081	0.000011	0.174082
0.116367	0.000011	0.116364
0.058266	0.000011	0.058272
-0.000060	0.000011	-0.000053
-0.058373	0.000011	-0.058365
-0.116472	0.000011	-0.116467
-0.174167	0.000011	-0.174163
-0.174306	0.000011	-0.174308
-0.116567	0.000011	-0.116575
-0.058456	0.000011	-0.058456
-0.000147	0.000011	-0.000160
0.058182	0.000011	0.058178
0.116265	0.000011	0.116268
0.173938	0.000011	0.173936



- LEGEND**
- (1): Linear factors obtained by means of linear formula according to the least squares method.
  - (2): The errors shows related to residual error on the calibration step applying:
    - linear/polynomial correction + Uncertainty (for analog instrument);
    - polynomial correction (internally applied) + Uncertainty (for digital instrument).
  - (3): Values calculated using linear correction (for analog instrument).
  - (4): Polynomial factors obtained by means of linear multiply regression formula (for analog instrument).
  - (5): Values calculated using polynomial correction (for analog instrument).
  - (6): Reference readings.
  - (7): Instruments readings.

- NOTES:**
- a) % F.S. error is calculated on whole range.
  - b) Resulting error depends on the effects of repeatability (for digital instrument) linearity and hysteresis.
  - c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty (repeatability).

Configured in "Normal mode" (SISGEO MODBUS protocol)



# CALIBRATION REPORT

N. 2404920

**Serial Number:** S241238

**Product Code:** 0LTIBV10102\_10

**Model:** LT-INCLIBUS 1 VERTICAL SENSOR,  $\pm 10^\circ$

**Type:** Digital

**Calibration Date:** 04/04/2024 13:47

**Job Number:** 24-00307

**Project Code:** Address #03

## Test Conditions

**Temperature:**  $23 \pm 0.5^\circ\text{C}$

**Humidity:**  $35 \pm 10\%$

**Barometric Pressure:**  $1005 \pm 5\text{ hPa}$

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: according to the instruments model in the current revision or in previous versions in case of discontinued instruments)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

**The metrological traceability of the reference standards is guaranteed by the calibration certificates issued by laboratories accredited by an accreditation body signatory of Mutual Recognition Agreements (EA - European cooperative for Accreditation, IAF - International Accreditation Forum, ILAC - International Laboratory Accreditation Cooperation for Mutual Recognition Agreements)**  
**Sisgeo's Standard References:**

Electronic level 210: Microplan, LE602, C.T. LAT172LE0002/22

Angular standard  $1^\circ$  223: Microplan BELAC 1909-07906

Angular standard  $2.5^\circ$  222: Microplan BELAC 1909-07894

Angular standard  $5^\circ$  221: Microplan BELAC 1909-07893

Angular standard  $10^\circ$  218: Microplan BELAC 2007-07377

Angular standard  $20^\circ$  219: Microplan BELAC 2007-07378

Angular standard  $30^\circ$  220: Microplan BELAC 2007-07376

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

<b>Sensitivity <sup>(1)</sup></b>	9.9997E-01 [sina/sina]
	1.0000E+00 [sina/sina]

<b>Maximum Residual Error <sup>(2)</sup></b>	0.0115 [%FS]
	0.0081 [%FS]

**MPE = 0.05 [%FS]**

## CRITERIA

$|\text{Max Residual Err.}| + U < |\text{MPE}|$

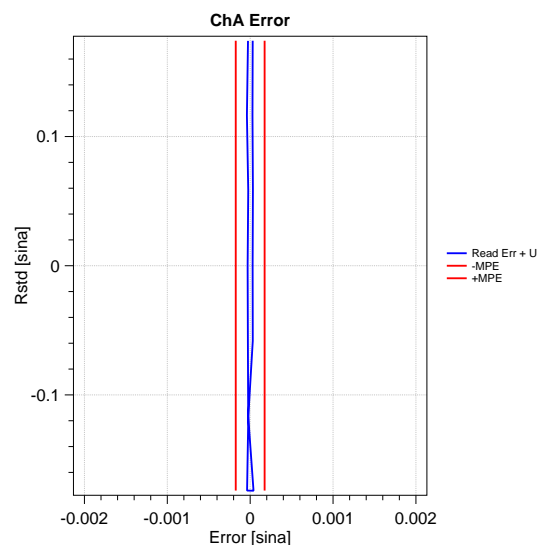
## COMPLIANT

To the Datasheet

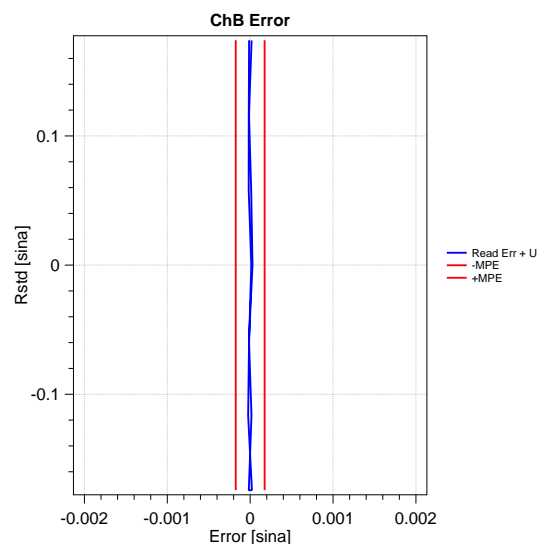
Issue Date: 04.04.2024

CQE: *Mario Bruni*

Ch. A		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.174173	0.000020	0.174163
0.116474	0.000020	0.116466
0.058385	0.000020	0.058372
0.000052	0.000020	0.000042
-0.058262	0.000020	-0.058274
-0.116353	0.000020	-0.116350
-0.174047	0.000020	-0.174029
-0.174184	0.000020	-0.174205
-0.116449	0.000020	-0.116445
-0.058333	0.000020	-0.058325
-0.000025	0.000020	-0.000014
0.058305	0.000020	0.058308
0.116384	0.000020	0.116403
0.174066	0.000020	0.174072



Ch. B		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.174081	0.000012	0.174082
0.116367	0.000012	0.116372
0.058266	0.000012	0.058272
-0.000060	0.000012	-0.000062
-0.058373	0.000012	-0.058371
-0.116472	0.000012	-0.116459
-0.174167	0.000012	-0.174176
-0.174306	0.000012	-0.174301
-0.116567	0.000012	-0.116570
-0.058456	0.000012	-0.058453
-0.000147	0.000012	-0.000163
0.058182	0.000012	0.058182
0.116265	0.000012	0.116267
0.173938	0.000012	0.173933



- LEGEND**
- (1): Linear factors obtained by means of linear formula according to the least squares method.
  - (2): The errors shows related to residual error on the calibration step applying:
    - linear/polynomial correction + Uncertainty (for analog instrument);
    - polynomial correction (internally applied) + Uncertainty (for digital instrument).
  - (3): Values calculated using linear correction (for analog instrument).
  - (4): Polynomial factors obtained by means of linear multiply regression formula (for analog instrument).
  - (5): Values calculated using polynomial correction (for analog instrument).
  - (6): Reference readings.
  - (7): Instruments readings.

- NOTES:**
- a) % F.S. error is calculated on whole range.
  - b) Resulting error depends on the effects of repeatability (for digital instrument) linearity and hysteresis.
  - c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty (repeatability).

Configured in "Normal mode" (SISGEO MODBUS protocol)



# CALIBRATION REPORT

N. 2404921

**Serial Number:** S241239

**Product Code:** 0LTIBV10102\_10

**Model:** LT-INCLIBUS 1 VERTICAL SENSOR,  $\pm 10^\circ$

**Type:** Digital

**Calibration Date:** 04/04/2024 13:47

**Job Number:** 24-00307

**Project Code:** Address #04

## Test Conditions

**Temperature:**  $23 \pm 0.5^\circ\text{C}$

**Humidity:**  $35 \pm 10\%$

**Barometric Pressure:**  $1005 \pm 5\text{ hPa}$

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: according to the instruments model in the current revision or in previous versions in case of discontinued instruments)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

**The metrological traceability of the reference standards is guaranteed by the calibration certificates issued by laboratories accredited by an accreditation body signatory of Mutual Recognition Agreements (EA - European cooperative for Accreditation, IAF - International Accreditation Forum, ILAC - International Laboratory Accreditation Cooperation for Mutual Recognition Agreements)**

**Sisgeo's Standard References:**

Electronic level 210: Microplan, LE602, C.T. LAT172LE0002/22

Angular standard  $1^\circ$  223: Microplan BELAC 1909-07906

Angular standard  $2.5^\circ$  222: Microplan BELAC 1909-07894

Angular standard  $5^\circ$  221: Microplan BELAC 1909-07893

Angular standard  $10^\circ$  218: Microplan BELAC 2007-07377

Angular standard  $20^\circ$  219: Microplan BELAC 2007-07378

Angular standard  $30^\circ$  220: Microplan BELAC 2007-07376

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

**Sensitivity <sup>(1)</sup>**

9.9991E-01 [sina/sina]

9.9998E-01 [sina/sina]

**Maximum Residual Error <sup>(2)</sup>**

0.0252 [%FS]

0.0068 [%FS]

**MPE = 0.05 [%FS]**

**CRITERIA**

$|\text{Max Residual Err.}| + U < |\text{MPE}|$

**COMPLIANT**

To the Datasheet

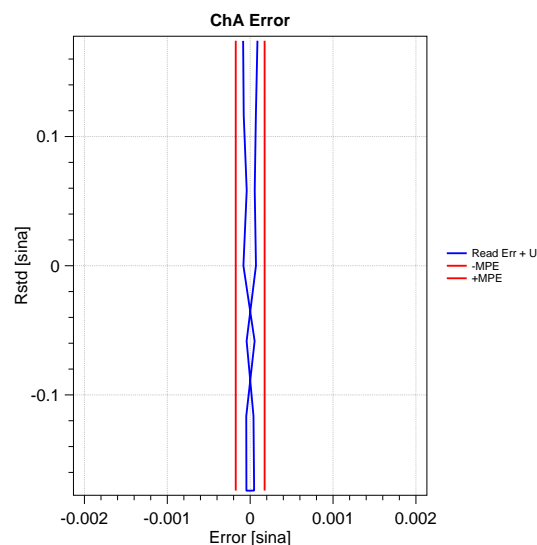
Issue Date: 04.04.2024

CQE:

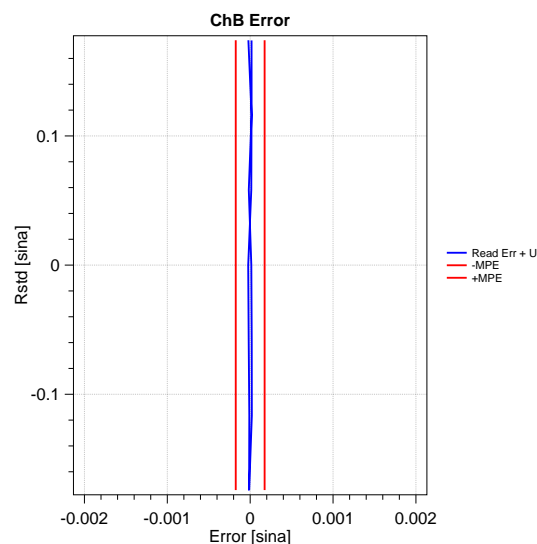
*Mario Bruni*



Ch. A		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.174173	0.000037	0.174123
0.116474	0.000037	0.116443
0.058385	0.000037	0.058367
0.000052	0.000037	0.000019
-0.058262	0.000037	-0.058257
-0.116353	0.000037	-0.116355
-0.174047	0.000037	-0.174057
-0.174184	0.000037	-0.174176
-0.116449	0.000037	-0.116439
-0.058333	0.000037	-0.058350
-0.000025	0.000037	0.000020
0.058305	0.000037	0.058309
0.116384	0.000037	0.116424
0.174066	0.000037	0.174114



Ch. B		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.174081	0.000010	0.174092
0.116367	0.000010	0.116361
0.058266	0.000010	0.058263
-0.000060	0.000010	-0.000047
-0.058373	0.000010	-0.058365
-0.116472	0.000010	-0.116472
-0.174167	0.000010	-0.174164
-0.174306	0.000010	-0.174304
-0.116567	0.000010	-0.116576
-0.058456	0.000010	-0.058464
-0.000147	0.000010	-0.000151
0.058182	0.000010	0.058188
0.116265	0.000010	0.116258
0.173938	0.000010	0.173932



- LEGEND**
- (1): Linear factors obtained by means of linear formula according to the least squares method.
  - (2): The errors shows related to residual error on the calibration step applying:
    - linear/polynomial correction + Uncertainty (for analog instrument);
    - polynomial correction (internally applied) + Uncertainty (for digital instrument).
  - (3): Values calculated using linear correction (for analog instrument).
  - (4): Polynomial factors obtained by means of linear multiply regression formula (for analog instrument).
  - (5): Values calculated using polynomial correction (for analog instrument).
  - (6): Reference readings.
  - (7): Instruments readings.

- NOTES:**
- a) % F.S. error is calculated on whole range.
  - b) Resulting error depends on the effects of repeatability (for digital instrument) linearity and hysteresis.
  - c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty (repeatability).

Configured in "Normal mode" (SISGEO MODBUS protocol)



# CALIBRATION REPORT

N. 2404922

**Serial Number:** S241240

**Product Code:** 0LTIBV10102\_10

**Model:** LT-INCLIBUS 1 VERTICAL SENSOR,  $\pm 10^\circ$

**Type:** Digital

**Calibration Date:** 04/04/2024 13:47

**Job Number:** 24-00307

**Project Code:** Address #05

## Test Conditions

**Temperature:**  $23 \pm 0.5^\circ\text{C}$

**Humidity:**  $35 \pm 10\%$

**Barometric Pressure:**  $1005 \pm 5\text{ hPa}$

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: according to the instruments model in the current revision or in previous versions in case of discontinued instruments)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

**The metrological traceability of the reference standards is guaranteed by the calibration certificates issued by laboratories accredited by an accreditation body signatory of Mutual Recognition Agreements (EA - European cooperative for Accreditation, IAF - International Accreditation Forum, ILAC - International Laboratory Accreditation Cooperation for Mutual Recognition Agreements)**

**Sisgeo's Standard References:**

Electronic level 210: Microplan, LE602, C.T. LAT172LE0002/22

Angular standard  $1^\circ$  223: Microplan BELAC 1909-07906

Angular standard  $2.5^\circ$  222: Microplan BELAC 1909-07894

Angular standard  $5^\circ$  221: Microplan BELAC 1909-07893

Angular standard  $10^\circ$  218: Microplan BELAC 2007-07377

Angular standard  $20^\circ$  219: Microplan BELAC 2007-07378

Angular standard  $30^\circ$  220: Microplan BELAC 2007-07376

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

**Sensitivity <sup>(1)</sup>**

9.9994E-01 [sina/sina]

9.9998E-01 [sina/sina]

**Maximum Residual Error <sup>(2)</sup>**

0.0129 [%FS]

0.0084 [%FS]

**MPE = 0.05 [%FS]**

**CRITERIA**

$|\text{Max Residual Err.}| + U < |\text{MPE}|$

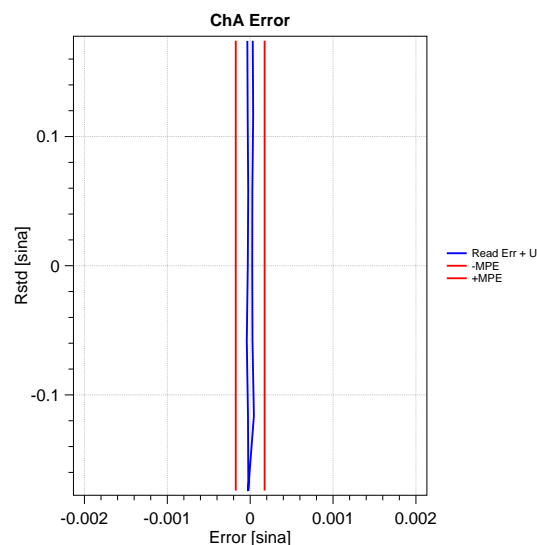
**COMPLIANT**

To the Datasheet

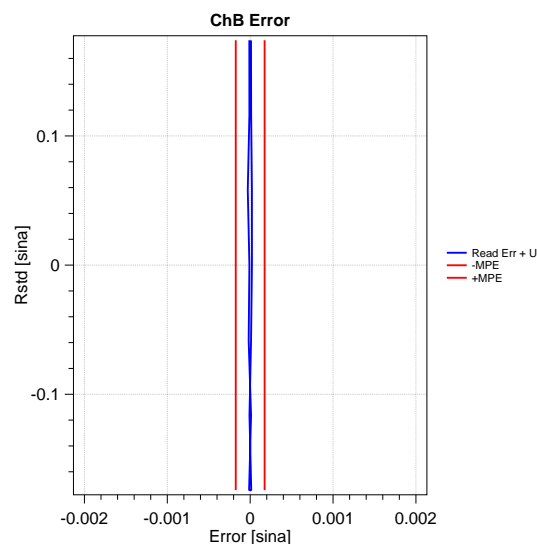
Issue Date: 04.04.2024

CQE: *Mario Bruni*

Ch. A		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.174173	0.000020	0.174162
0.116474	0.000020	0.116458
0.058385	0.000020	0.058379
0.000052	0.000020	0.000047
-0.058262	0.000020	-0.058270
-0.116353	0.000020	-0.116377
-0.174047	0.000020	-0.174043
-0.174184	0.000020	-0.174182
-0.116449	0.000020	-0.116442
-0.058333	0.000020	-0.058312
-0.000025	0.000020	-0.000016
0.058305	0.000020	0.058308
0.116384	0.000020	0.116394
0.174066	0.000020	0.174080



Ch. B		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.174081	0.000008	0.174082
0.116367	0.000008	0.116368
0.058266	0.000008	0.058287
-0.000060	0.000008	-0.000059
-0.058373	0.000008	-0.058363
-0.116472	0.000008	-0.116474
-0.174167	0.000008	-0.174162
-0.174306	0.000008	-0.174311
-0.116567	0.000008	-0.116566
-0.058456	0.000008	-0.058458
-0.000147	0.000008	-0.000160
0.058182	0.000008	0.058170
0.116265	0.000008	0.116261
0.173938	0.000008	0.173937



- LEGEND**
- (1): Linear factors obtained by means of linear formula according to the least squares method.
  - (2): The errors shows related to residual error on the calibration step applying:
    - linear/polynomial correction + Uncertainty (for analog instrument);
    - polynomial correction (internally applied) + Uncertainty (for digital instrument).
  - (3): Values calculated using linear correction (for analog instrument).
  - (4): Polynomial factors obtained by means of linear multiply regression formula (for analog instrument).
  - (5): Values calculated using polynomial correction (for analog instrument).
  - (6): Reference readings.
  - (7): Instruments readings.

- NOTES:**
- a) % F.S. error is calculated on whole range.
  - b) Resulting error depends on the effects of repeatability (for digital instrument) linearity and hysteresis.
  - c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty (repeatability).

Configured in "Normal mode" (SISGEO MODBUS protocol)



# CALIBRATION REPORT

N. 2405757

**Serial Number:** S241450

**Product Code:** OMDP30V1000

**Model:** MD PROFILE VERT. GAUGE 30°, 1 mt

**Type:** Digital

**Calibration Date:** 18/04/2024 09:06

**Job Number:** 24-00307

**Project Code:** Address #01

## Test Conditions

**Temperature:** 20 ± 0.5 °C

**Humidity:** 54 ± 10%

**Barometric Pressure:** 1011 ± 5 hPa

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: according to the instruments model in the current revision or in previous versions in case of discontinued instruments)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

**The metrological traceability of the reference standards is guaranteed by the calibration certificates issued by laboratories accredited by an accreditation body signatory of Mutual Recognition Agreements (EA - European cooperative for Accreditation, IAF - International Accreditation Forum, ILAC - International Laboratory Accreditation Cooperation for Mutual Recognition Agreements)**  
**Sisgeo's Standard References:**

Electronic level 210: Microplan, LE602, C.T. LAT172LE0002/22

Angular standard 1° 223: Microplan BELAC 1909-07906

Angular standard 2.5° 222: Microplan BELAC 1909-07894

Angular standard 5° 221: Microplan BELAC 1909-07893

Angular standard 10° 218: Microplan BELAC 2007-07377

Angular standard 20° 219: Microplan BELAC 2007-07378

Angular standard 30° 220: Microplan BELAC 2007-07376

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

**Sensitivity <sup>(1)</sup>** **Ch. A** 1.0000E+00 [sina/sina]

**Ch. B** 1.0000E+00 [sina/sina]

**Maximum Residual Error <sup>(2)</sup>** **Ch. A** 0.0032 [%FS]

**Ch. B** 0.0051 [%FS]

**MPE = 0.01 [%FS]**

## CRITERIA

|Max Residual Err.| + U < |MPE|

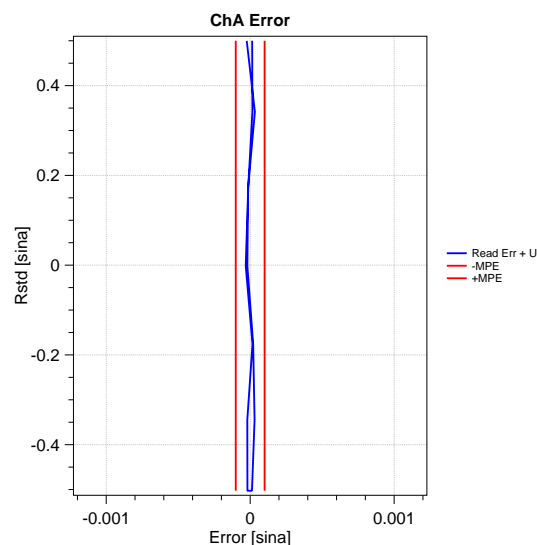
## COMPLIANT

To the Datasheet

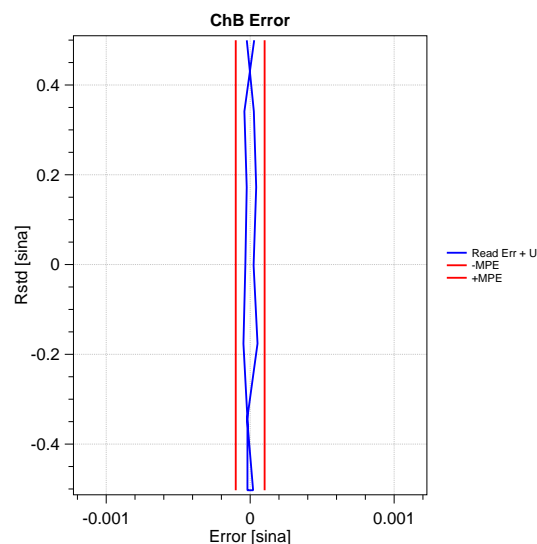
Issue Date: 18.04.2024

CQE: *Mario Bruni*

Ch. A		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.500066	0.000012	0.500065
0.341600	0.000012	0.341597
0.172434	0.000012	0.172435
-0.001807	0.000012	-0.001788
-0.175980	0.000012	-0.175984
-0.344602	0.000012	-0.344594
-0.502604	0.000012	-0.502597
-0.502619	0.000012	-0.502619
-0.344425	0.000012	-0.344443
-0.175768	0.000012	-0.175776
-0.001616	0.000012	-0.001609
0.172507	0.000012	0.172509
0.341542	0.000012	0.341522
0.499737	0.000012	0.499748



Ch. B		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.499697	0.000018	0.499687
0.341188	0.000018	0.341211
0.172006	0.000018	0.172012
-0.002224	0.000018	-0.002208
-0.176359	0.000018	-0.176330
-0.344910	0.000018	-0.344910
-0.502823	0.000018	-0.502822
-0.502814	0.000018	-0.502816
-0.344647	0.000018	-0.344644
-0.176016	0.000018	-0.176049
-0.001887	0.000018	-0.001893
0.172235	0.000018	0.172212
0.341279	0.000018	0.341272
0.499538	0.000018	0.499544



- LEGEND**
- (1): Linear factors obtained by means of linear formula according to the least squares method.
  - (2): The errors shows related to residual error on the calibration step applying:
    - linear/polynomial correction + Uncertainty (for analog instrument);
    - polynomial correction (internally applied) + Uncertainty (for digital instrument).
  - (3): Values calculated using linear correction (for analog instrument).
  - (4): Polynomial factors obtained by means of linear multiply regression formula (for analog instrument).
  - (5): Values calculated using polynomial correction (for analog instrument).
  - (6): Reference readings.
  - (7): Instruments readings.

- NOTES:**
- a) % F.S. error is calculated on whole range.
  - b) Resulting error depends on the effects of repeatability (for digital instrument) linearity and hysteresis.
  - c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty (repeatability).

Configured in "Normal mode" (SISGEO MODBUS protocol)

WIRING: see manual



# CALIBRATION REPORT

N. 2405758

**Serial Number:** S241451

**Product Code:** OMDP30V1000

**Model:** MD PROFILE VERT. GAUGE 30°, 1 mt

**Type:** Digital

**Calibration Date:** 18/04/2024 09:06

**Job Number:** 24-00307

**Project Code:** Address #02

## Test Conditions

**Temperature:** 20 ± 0.5 °C

**Humidity:** 54 ± 10%

**Barometric Pressure:** 1011 ± 5 hPa

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: according to the instruments model in the current revision or in previous versions in case of discontinued instruments)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

**The metrological traceability of the reference standards is guaranteed by the calibration certificates issued by laboratories accredited by an accreditation body signatory of Mutual Recognition Agreements (EA - European cooperative for Accreditation, IAF - International Accreditation Forum, ILAC - International Laboratory Accreditation Cooperation for Mutual Recognition Agreements)**

**Sisgeo's Standard References:**

Electronic level 210: Microplan, LE602, C.T. LAT172LE0002/22

Angular standard 1° 223: Microplan BELAC 1909-07906

Angular standard 2.5° 222: Microplan BELAC 1909-07894

Angular standard 5° 221: Microplan BELAC 1909-07893

Angular standard 10° 218: Microplan BELAC 2007-07377

Angular standard 20° 219: Microplan BELAC 2007-07378

Angular standard 30° 220: Microplan BELAC 2007-07376

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

<b>Sensitivity <sup>(1)</sup></b>	<b>Ch. A</b>	1.0000E+00 [sina/sina]
	<b>Ch. B</b>	9.9999E-01 [sina/sina]

<b>Maximum Residual Error <sup>(2)</sup></b>	<b>Ch. A</b>	0.0039 [%FS]
	<b>Ch. B</b>	0.0062 [%FS]

**MPE = 0.01 [%FS]**

## CRITERIA

|Max Residual Err.| + U < |MPE|

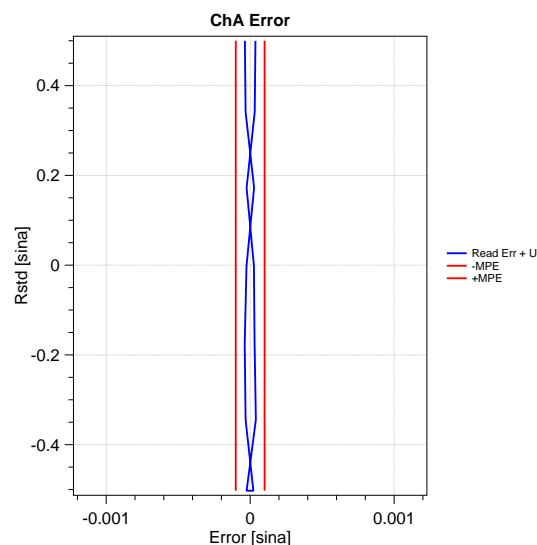
## COMPLIANT

To the Datasheet

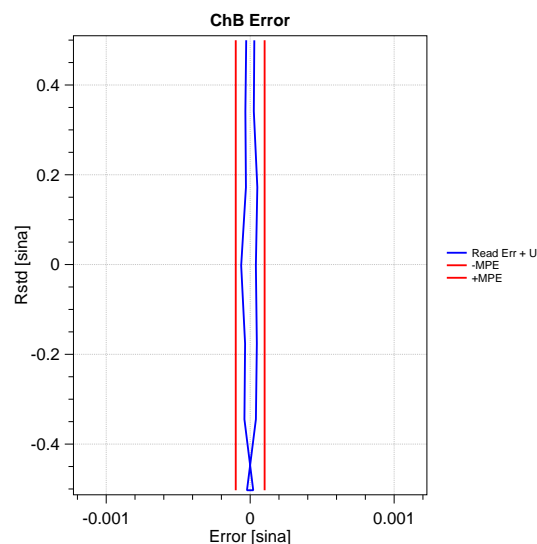
Issue Date: 18.04.2024

CQE: *Mario Bruni*

Ch. A		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.500066	0.000016	0.500086
0.341600	0.000016	0.341615
0.172434	0.000016	0.172424
-0.001807	0.000016	-0.001798
-0.175980	0.000016	-0.175959
-0.344602	0.000016	-0.344587
-0.502604	0.000016	-0.502610
-0.502619	0.000016	-0.502611
-0.344425	0.000016	-0.344448
-0.175768	0.000016	-0.175782
-0.001616	0.000016	-0.001625
0.172507	0.000016	0.172515
0.341542	0.000016	0.341527
0.499737	0.000016	0.499717



Ch. B		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.499697	0.000021	0.499704
0.341188	0.000021	0.341201
0.172006	0.000021	0.172015
-0.002224	0.000021	-0.002182
-0.176359	0.000021	-0.176344
-0.344910	0.000021	-0.344891
-0.502823	0.000021	-0.502824
-0.502814	0.000021	-0.502812
-0.344647	0.000021	-0.344666
-0.176016	0.000021	-0.176042
-0.001887	0.000021	-0.001906
0.172235	0.000021	0.172206
0.341279	0.000021	0.341275
0.499538	0.000021	0.499530



- LEGEND**
- (1): Linear factors obtained by means of linear formula according to the least squares method.
  - (2): The errors shows related to residual error on the calibration step applying:
    - linear/polynomial correction + Uncertainty (for analog instrument);
    - polynomial correction (internally applied) + Uncertainty (for digital instrument).
  - (3): Values calculated using linear correction (for analog instrument).
  - (4): Polynomial factors obtained by means of linear multiply regression formula (for analog instrument).
  - (5): Values calculated using polynomial correction (for analog instrument).
  - (6): Reference readings.
  - (7): Instruments readings.

- NOTES:**
- a) % F.S. error is calculated on whole range.
  - b) Resulting error depends on the effects of repeatability (for digital instrument) linearity and hysteresis.
  - c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty (repeatability).

Configured in "Normal mode" (SISGEO MODBUS protocol)

WIRING: see manual



# CALIBRATION REPORT

N. 2405759

**Serial Number:** S241452

**Product Code:** OMDP30V1000

**Model:** MD PROFILE VERT. GAUGE 30°, 1 mt

**Type:** Digital

**Calibration Date:** 18/04/2024 09:06

**Job Number:** 24-00307

**Project Code:** Address #03

## Test Conditions

**Temperature:** 20 ± 0.5 °C

**Humidity:** 54 ± 10%

**Barometric Pressure:** 1011 ± 5 hPa

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: according to the instruments model in the current revision or in previous versions in case of discontinued instruments)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

**The metrological traceability of the reference standards is guaranteed by the calibration certificates issued by laboratories accredited by an accreditation body signatory of Mutual Recognition Agreements (EA - European cooperative for Accreditation, IAF - International Accreditation Forum, ILAC - International Laboratory Accreditation Cooperation for Mutual Recognition Agreements)**  
**Sisgeo's Standard References:**

Electronic level 210: Microplan, LE602, C.T. LAT172LE0002/22

Angular standard 1° 223: Microplan BELAC 1909-07906

Angular standard 2.5° 222: Microplan BELAC 1909-07894

Angular standard 5° 221: Microplan BELAC 1909-07893

Angular standard 10° 218: Microplan BELAC 2007-07377

Angular standard 20° 219: Microplan BELAC 2007-07378

Angular standard 30° 220: Microplan BELAC 2007-07376

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

**Sensitivity <sup>(1)</sup>** **Ch. A** 1.0000E+00 [sina/sina]

**Ch. B** 9.9999E-01 [sina/sina]

**Maximum Residual Error <sup>(2)</sup>** **Ch. A** 0.0021 [%FS]

**Ch. B** 0.0059 [%FS]

**MPE = 0.01 [%FS]**

## CRITERIA

|Max Residual Err.| + U < |MPE|

## COMPLIANT

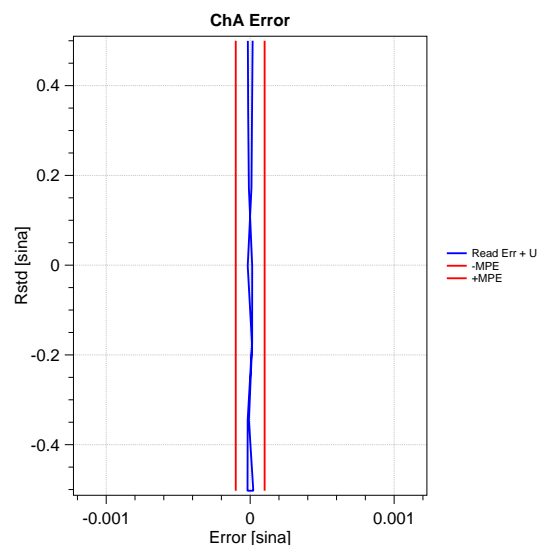
To the Datasheet

Issue Date: 18.04.2024

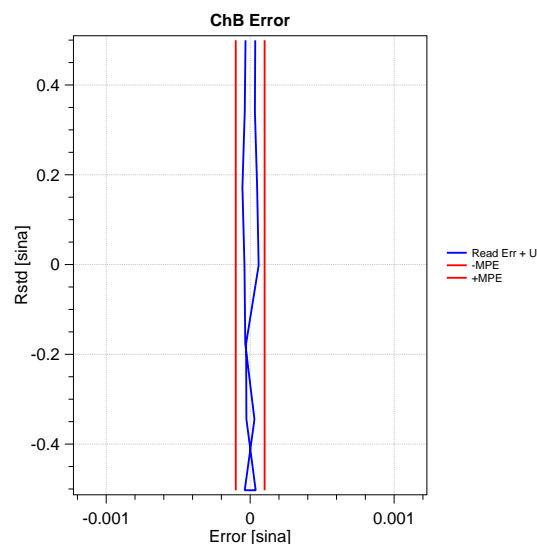
CQE: *Mario Bruni*



Ch. A		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.500066	0.000008	0.500057
0.341600	0.000008	0.341595
0.172434	0.000008	0.172433
-0.001807	0.000008	-0.001798
-0.175980	0.000008	-0.175985
-0.344602	0.000008	-0.344593
-0.502604	0.000008	-0.502594
-0.502619	0.000008	-0.502633
-0.344425	0.000008	-0.344425
-0.175768	0.000008	-0.175774
-0.001616	0.000008	-0.001622
0.172507	0.000008	0.172508
0.341542	0.000008	0.341548
0.499737	0.000008	0.499745



Ch. B		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.499697	0.000023	0.499705
0.341188	0.000023	0.341203
0.172006	0.000023	0.172036
-0.002224	0.000023	-0.002208
-0.176359	0.000023	-0.176348
-0.344910	0.000023	-0.344917
-0.502823	0.000023	-0.502809
-0.502814	0.000023	-0.502829
-0.344647	0.000023	-0.344644
-0.176016	0.000023	-0.176012
-0.001887	0.000023	-0.001923
0.172235	0.000023	0.172211
0.341279	0.000023	0.341270
0.499538	0.000023	0.499527



- LEGEND**
- (1): Linear factors obtained by means of linear formula according to the least squares method.
  - (2): The errors shows related to residual error on the calibration step applying:
    - linear/polynomial correction + Uncertainty (for analog instrument);
    - polynomial correction (internally applied) + Uncertainty (for digital instrument).
  - (3): Values calculated using linear correction (for analog instrument).
  - (4): Polynomial factors obtained by means of linear multiply regression formula (for analog instrument).
  - (5): Values calculated using polynomial correction (for analog instrument).
  - (6): Reference readings.
  - (7): Instruments readings.

- NOTES:**
- a) % F.S. error is calculated on whole range.
  - b) Resulting error depends on the effects of repeatability (for digital instrument) linearity and hysteresis.
  - c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty (repeatability).

Configured in "Normal mode" (SISGEO MODBUS protocol)

WIRING: see manual



# CALIBRATION REPORT

N. 2405760

**Serial Number:** S241453

**Product Code:** OMDP30V1000

**Model:** MD PROFILE VERT. GAUGE 30°, 1 mt

**Type:** Digital

**Calibration Date:** 18/04/2024 09:06

**Job Number:** 24-00307

**Project Code:** Address #04

## Test Conditions

**Temperature:** 20 ± 0.5 °C

**Humidity:** 54 ± 10%

**Barometric Pressure:** 1011 ± 5 hPa

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: according to the instruments model in the current revision or in previous versions in case of discontinued instruments)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

**The metrological traceability of the reference standards is guaranteed by the calibration certificates issued by laboratories accredited by an accreditation body signatory of Mutual Recognition Agreements (EA - European cooperative for Accreditation, IAF - International Accreditation Forum, ILAC - International Laboratory Accreditation Cooperation for Mutual Recognition Agreements)**

**Sisgeo's Standard References:**

Electronic level 210: Microplan, LE602, C.T. LAT172LE0002/22

Angular standard 1° 223: Microplan BELAC 1909-07906

Angular standard 2.5° 222: Microplan BELAC 1909-07894

Angular standard 5° 221: Microplan BELAC 1909-07893

Angular standard 10° 218: Microplan BELAC 2007-07377

Angular standard 20° 219: Microplan BELAC 2007-07378

Angular standard 30° 220: Microplan BELAC 2007-07376

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

<b>Sensitivity <sup>(1)</sup></b>	<b>Ch. A</b>	1.0000E+00 [sina/sina]
	<b>Ch. B</b>	9.9998E-01 [sina/sina]

<b>Maximum Residual Error <sup>(2)</sup></b>	<b>Ch. A</b>	0.0031 [%FS]
	<b>Ch. B</b>	0.0059 [%FS]

**MPE = 0.01 [%FS]**

## CRITERIA

|Max Residual Err.| + U < |MPE|

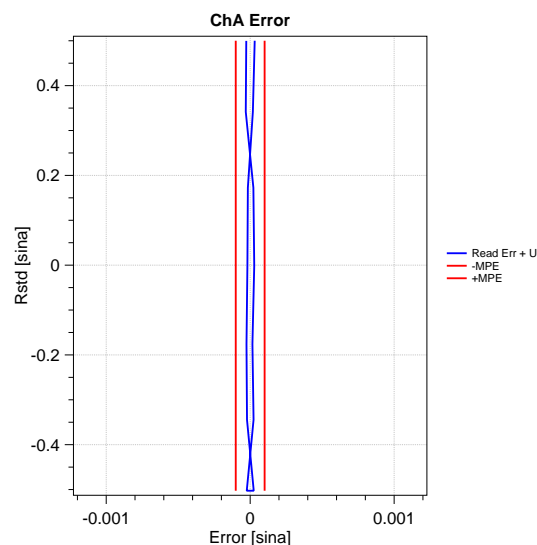
## COMPLIANT

To the Datasheet

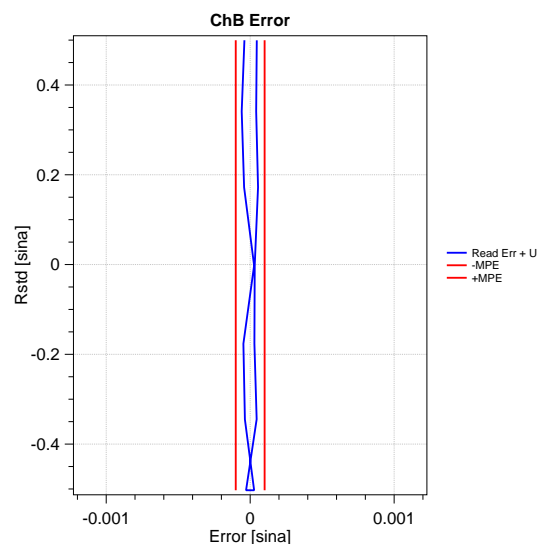
Issue Date: 18.04.2024

CQE: *Mario Bruni*

Ch. A		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.500066	0.000015	0.500049
0.341600	0.000015	0.341596
0.172434	0.000015	0.172436
-0.001807	0.000015	-0.001802
-0.175980	0.000015	-0.175969
-0.344602	0.000015	-0.344595
-0.502604	0.000015	-0.502614
-0.502619	0.000015	-0.502610
-0.344425	0.000015	-0.344434
-0.175768	0.000015	-0.175769
-0.001616	0.000015	-0.001629
0.172507	0.000015	0.172499
0.341542	0.000015	0.341558
0.499737	0.000015	0.499749



Ch. B		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.499697	0.000025	0.499712
0.341188	0.000025	0.341223
0.172006	0.000025	0.172023
-0.002224	0.000025	-0.002227
-0.176359	0.000025	-0.176336
-0.344910	0.000025	-0.344899
-0.502823	0.000025	-0.502826
-0.502814	0.000025	-0.502810
-0.344647	0.000025	-0.344667
-0.176016	0.000025	-0.176021
-0.001887	0.000025	-0.001894
0.172235	0.000025	0.172206
0.341279	0.000025	0.341263
0.499538	0.000025	0.499517



- LEGEND**
- (1): Linear factors obtained by means of linear formula according to the least squares method.
  - (2): The errors shows related to residual error on the calibration step applying:
    - linear/polynomial correction + Uncertainty (for analog instrument);
    - polynomial correction (internally applied) + Uncertainty (for digital instrument).
  - (3): Values calculated using linear correction (for analog instrument).
  - (4): Polynomial factors obtained by means of linear multiply regression formula (for analog instrument).
  - (5): Values calculated using polynomial correction (for analog instrument).
  - (6): Reference readings.
  - (7): Instruments readings.

- NOTES:**
- a) % F.S. error is calculated on whole range.
  - b) Resulting error depends on the effects of repeatability (for digital instrument) linearity and hysteresis.
  - c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty (repeatability).

Configured in "Normal mode" (SISGEO MODBUS protocol)

WIRING: see manual



# CALIBRATION REPORT

N. 2405761

**Serial Number:** S241454

**Product Code:** OMDP30V1000

**Model:** MD PROFILE VERT. GAUGE 30°, 1 mt

**Type:** Digital

**Calibration Date:** 18/04/2024 09:06

**Job Number:** 24-00307

**Project Code:** Address #05

## Test Conditions

**Temperature:** 20 ± 0.5 °C

**Humidity:** 54 ± 10%

**Barometric Pressure:** 1011 ± 5 hPa

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: according to the instruments model in the current revision or in previous versions in case of discontinued instruments)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

**The metrological traceability of the reference standards is guaranteed by the calibration certificates issued by laboratories accredited by an accreditation body signatory of Mutual Recognition Agreements (EA - European cooperative for Accreditation, IAF - International Accreditation Forum, ILAC - International Laboratory Accreditation Cooperation for Mutual Recognition Agreements)**  
**Sisgeo's Standard References:**

Electronic level 210: Microplan, LE602, C.T. LAT172LE0002/22

Angular standard 1° 223: Microplan BELAC 1909-07906

Angular standard 2.5° 222: Microplan BELAC 1909-07894

Angular standard 5° 221: Microplan BELAC 1909-07893

Angular standard 10° 218: Microplan BELAC 2007-07377

Angular standard 20° 219: Microplan BELAC 2007-07378

Angular standard 30° 220: Microplan BELAC 2007-07376

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

**Sensitivity <sup>(1)</sup>** **Ch. A** 1.0000E+00 [sina/sina]

**Ch. B** 9.9999E-01 [sina/sina]

**Maximum Residual Error <sup>(2)</sup>** **Ch. A** 0.0056 [%FS]

**Ch. B** 0.0062 [%FS]

**MPE = 0.01 [%FS]**

## CRITERIA

|Max Residual Err.| + U < |MPE|

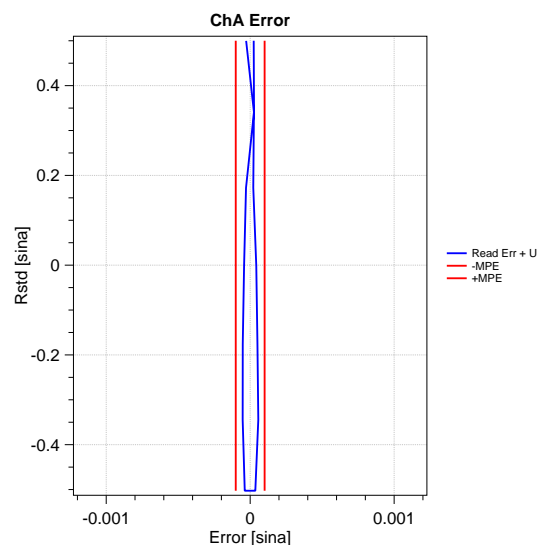
## COMPLIANT

To the Datasheet

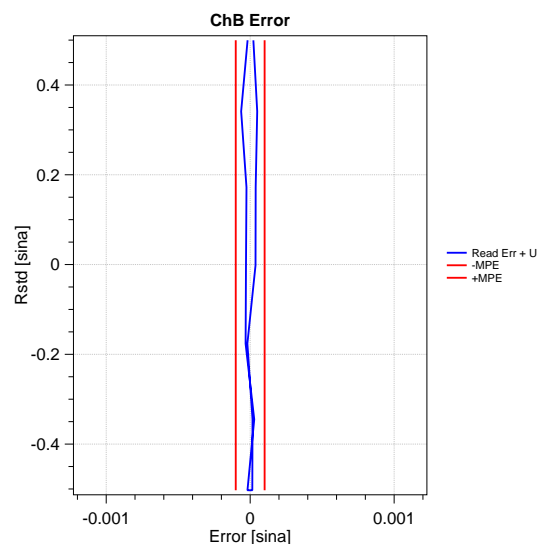
Issue Date: 18.04.2024

CQE: *Mario Bruni*

Ch. A		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.500066	0.000021	0.500063
0.341600	0.000021	0.341595
0.172434	0.000021	0.172442
-0.001807	0.000021	-0.001786
-0.175980	0.000021	-0.175950
-0.344602	0.000021	-0.344571
-0.502604	0.000021	-0.502588
-0.502619	0.000021	-0.502634
-0.344425	0.000021	-0.344460
-0.175768	0.000021	-0.175797
-0.001616	0.000021	-0.001637
0.172507	0.000021	0.172507
0.341542	0.000021	0.341538
0.499737	0.000021	0.499743



Ch. B		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.499697	0.000014	0.499701
0.341188	0.000014	0.341237
0.172006	0.000014	0.172017
-0.002224	0.000014	-0.002209
-0.176359	0.000014	-0.176341
-0.344910	0.000014	-0.344925
-0.502823	0.000014	-0.502818
-0.502814	0.000014	-0.502814
-0.344647	0.000014	-0.344649
-0.176016	0.000014	-0.176011
-0.001887	0.000014	-0.001910
0.172235	0.000014	0.172211
0.341279	0.000014	0.341245
0.499538	0.000014	0.499530



- LEGEND**
- (1): Linear factors obtained by means of linear formula according to the least squares method.
  - (2): The errors shows related to residual error on the calibration step applying:
    - linear/polynomial correction + Uncertainty (for analog instrument);
    - polynomial correction (internally applied) + Uncertainty (for digital instrument).
  - (3): Values calculated using linear correction (for analog instrument).
  - (4): Polynomial factors obtained by means of linear multiply regression formula (for analog instrument).
  - (5): Values calculated using polynomial correction (for analog instrument).
  - (6): Reference readings.
  - (7): Instruments readings.

- NOTES:**
- a) % F.S. error is calculated on whole range.
  - b) Resulting error depends on the effects of repeatability (for digital instrument) linearity and hysteresis.
  - c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty (repeatability).

Configured in "Normal mode" (SISGEO MODBUS protocol)

WIRING: see manual



# CALIBRATION REPORT

N. 2405762

**Serial Number:** S241455

**Product Code:** OMDP30V1000

**Model:** MD PROFILE VERT. GAUGE 30°, 1 mt

**Type:** Digital

**Calibration Date:** 18/04/2024 09:06

**Job Number:** 24-00307

**Project Code:** Address #06

## Test Conditions

**Temperature:** 20 ± 0.5 °C

**Humidity:** 54 ± 10%

**Barometric Pressure:** 1011 ± 5 hPa

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: according to the instruments model in the current revision or in previous versions in case of discontinued instruments)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

**The metrological traceability of the reference standards is guaranteed by the calibration certificates issued by laboratories accredited by an accreditation body signatory of Mutual Recognition Agreements (EA - European cooperative for Accreditation, IAF - International Accreditation Forum, ILAC - International Laboratory Accreditation Cooperation for Mutual Recognition Agreements)**  
**Sisgeo's Standard References:**

Electronic level 210: Microplan, LE602, C.T. LAT172LE0002/22

Angular standard 1° 223: Microplan BELAC 1909-07906

Angular standard 2.5° 222: Microplan BELAC 1909-07894

Angular standard 5° 221: Microplan BELAC 1909-07893

Angular standard 10° 218: Microplan BELAC 2007-07377

Angular standard 20° 219: Microplan BELAC 2007-07378

Angular standard 30° 220: Microplan BELAC 2007-07376

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

<b>Sensitivity <sup>(1)</sup></b>	<b>Ch. A</b>	1.0000E+00 [sina/sina]
	<b>Ch. B</b>	9.9999E-01 [sina/sina]

<b>Maximum Residual Error <sup>(2)</sup></b>	<b>Ch. A</b>	0.0023 [%FS]
	<b>Ch. B</b>	0.0062 [%FS]

**MPE = 0.01 [%FS]**

## CRITERIA

|Max Residual Err.| + U < |MPE|

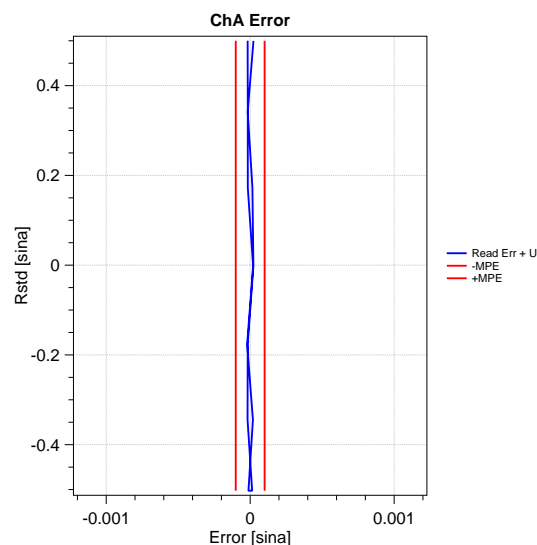
## COMPLIANT

To the Datasheet

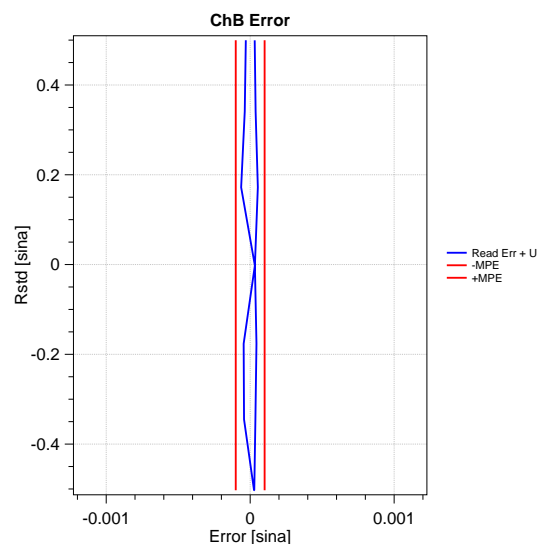
Issue Date: 18.04.2024

CQE: *Mario Bruni*

Ch. A		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.500066	0.000011	0.500073
0.341600	0.000011	0.341605
0.172434	0.000011	0.172440
-0.001807	0.000011	-0.001816
-0.175980	0.000011	-0.175970
-0.344602	0.000011	-0.344610
-0.502604	0.000011	-0.502603
-0.502619	0.000011	-0.502622
-0.344425	0.000011	-0.344418
-0.175768	0.000011	-0.175762
-0.001616	0.000011	-0.001627
0.172507	0.000011	0.172502
0.341542	0.000011	0.341548
0.499737	0.000011	0.499725



Ch. B		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.499697	0.000026	0.499701
0.341188	0.000026	0.341200
0.172006	0.000026	0.172042
-0.002224	0.000026	-0.002230
-0.176359	0.000026	-0.176340
-0.344910	0.000026	-0.344894
-0.502823	0.000026	-0.502824
-0.502814	0.000026	-0.502816
-0.344647	0.000026	-0.344657
-0.176016	0.000026	-0.176034
-0.001887	0.000026	-0.001894
0.172235	0.000026	0.172208
0.341279	0.000026	0.341268
0.499538	0.000026	0.499533



- LEGEND**
- (1): Linear factors obtained by means of linear formula according to the least squares method.
  - (2): The errors shows related to residual error on the calibration step applying:
    - linear/polynomial correction + Uncertainty (for analog instrument);
    - polynomial correction (internally applied) + Uncertainty (for digital instrument).
  - (3): Values calculated using linear correction (for analog instrument).
  - (4): Polynomial factors obtained by means of linear multiply regression formula (for analog instrument).
  - (5): Values calculated using polynomial correction (for analog instrument).
  - (6): Reference readings.
  - (7): Instruments readings.

- NOTES:**
- a) % F.S. error is calculated on whole range.
  - b) Resulting error depends on the effects of repeatability (for digital instrument) linearity and hysteresis.
  - c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty (repeatability).

Configured in "Normal mode" (SISGEO MODBUS protocol)

WIRING: see manual



# CALIBRATION REPORT

N. 2405764

**Serial Number:** S241456

**Product Code:** OMDP30V1000

**Model:** MD PROFILE VERT. GAUGE 30°, 1 mt

**Type:** Digital

**Calibration Date:** 18/04/2024 09:06

**Job Number:** 24-00307

**Project Code:** Address #07

## Test Conditions

**Temperature:** 20 ± 0.5 °C

**Humidity:** 54 ± 10%

**Barometric Pressure:** 1011 ± 5 hPa

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: according to the instruments model in the current revision or in previous versions in case of discontinued instruments)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

**The metrological traceability of the reference standards is guaranteed by the calibration certificates issued by laboratories accredited by an accreditation body signatory of Mutual Recognition Agreements (EA - European cooperative for Accreditation, IAF - International Accreditation Forum, ILAC - International Laboratory Accreditation Cooperation for Mutual Recognition Agreements)**  
**Sisgeo's Standard References:**

Electronic level 210: Microplan, LE602, C.T. LAT172LE0002/22

Angular standard 1° 223: Microplan BELAC 1909-07906

Angular standard 2.5° 222: Microplan BELAC 1909-07894

Angular standard 5° 221: Microplan BELAC 1909-07893

Angular standard 10° 218: Microplan BELAC 2007-07377

Angular standard 20° 219: Microplan BELAC 2007-07378

Angular standard 30° 220: Microplan BELAC 2007-07376

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

**Sensitivity <sup>(1)</sup>** **Ch. A** 1.0000E+00 [sina/sina]

**Ch. B** 9.9998E-01 [sina/sina]

**Maximum Residual Error <sup>(2)</sup>** **Ch. A** 0.0037 [%FS]

**Ch. B** 0.0048 [%FS]

**MPE = 0.01 [%FS]**

## CRITERIA

|Max Residual Err.| + U < |MPE|

## COMPLIANT

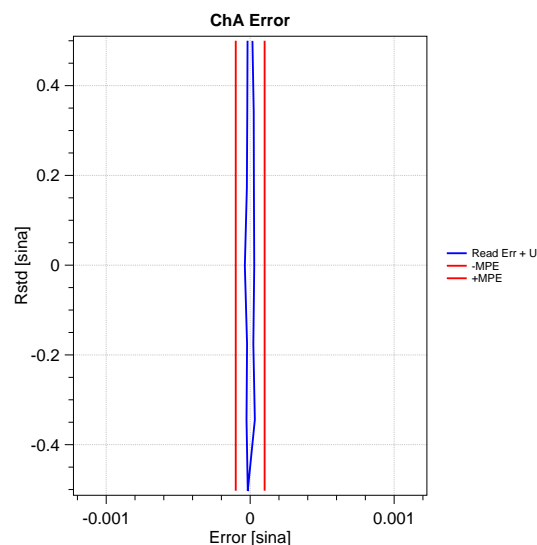
To the Datasheet

Issue Date: 18.04.2024

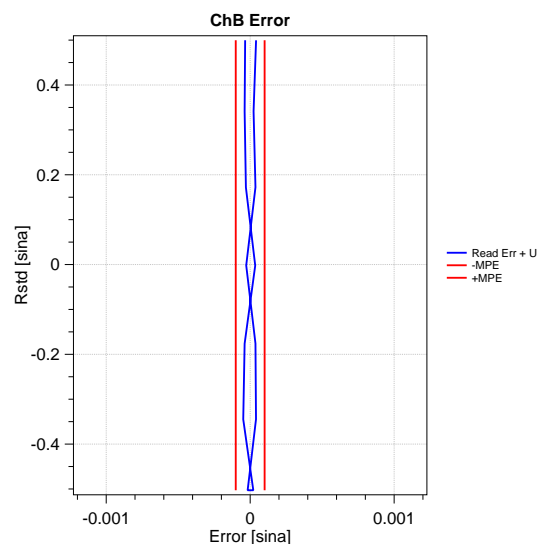
CQE: *Mario Bruni*



Ch. A		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.500066	0.000015	0.500069
0.341600	0.000015	0.341605
0.172434	0.000015	0.172442
-0.001807	0.000015	-0.001785
-0.175980	0.000015	-0.175974
-0.344602	0.000015	-0.344592
-0.502604	0.000015	-0.502602
-0.502619	0.000015	-0.502618
-0.344425	0.000015	-0.344443
-0.175768	0.000015	-0.175775
-0.001616	0.000015	-0.001629
0.172507	0.000015	0.172496
0.341542	0.000015	0.341533
0.499737	0.000015	0.499736



Ch. B		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.499697	0.000017	0.499715
0.341188	0.000017	0.341210
0.172006	0.000017	0.172019
-0.002224	0.000017	-0.002242
-0.176359	0.000017	-0.176337
-0.344910	0.000017	-0.344879
-0.502823	0.000017	-0.502828
-0.502814	0.000017	-0.502813
-0.344647	0.000017	-0.344671
-0.176016	0.000017	-0.176037
-0.001887	0.000017	-0.001876
0.172235	0.000017	0.172215
0.341279	0.000017	0.341273
0.499538	0.000017	0.499514



- LEGEND**
- (1): Linear factors obtained by means of linear formula according to the least squares method.
  - (2): The errors shows related to residual error on the calibration step applying:
    - linear/polynomial correction + Uncertainty (for analog instrument);
    - polynomial correction (internally applied) + Uncertainty (for digital instrument).
  - (3): Values calculated using linear correction (for analog instrument).
  - (4): Polynomial factors obtained by means of linear multiply regression formula (for analog instrument).
  - (5): Values calculated using polynomial correction (for analog instrument).
  - (6): Reference readings.
  - (7): Instruments readings.

- NOTES:**
- a) % F.S. error is calculated on whole range.
  - b) Resulting error depends on the effects of repeatability (for digital instrument) linearity and hysteresis.
  - c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty (repeatability).

Configured in "Normal mode" (SISGEO MODBUS protocol)

WIRING: see manual



# CALIBRATION REPORT

N. 2405765

**Serial Number:** S241457

**Product Code:** OMDP30V1000

**Model:** MD PROFILE VERT. GAUGE 30°, 1 mt

**Type:** Digital

**Calibration Date:** 18/04/2024 09:06

**Job Number:** 24-00307

**Project Code:** Address #08

## Test Conditions

**Temperature:** 20 ± 0.5 °C

**Humidity:** 54 ± 10%

**Barometric Pressure:** 1011 ± 5 hPa

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: according to the instruments model in the current revision or in previous versions in case of discontinued instruments)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

**The metrological traceability of the reference standards is guaranteed by the calibration certificates issued by laboratories accredited by an accreditation body signatory of Mutual Recognition Agreements (EA - European cooperative for Accreditation, IAF - International Accreditation Forum, ILAC - International Laboratory Accreditation Cooperation for Mutual Recognition Agreements)**  
**Sisgeo's Standard References:**

Electronic level 210: Microplan, LE602, C.T. LAT172LE0002/22

Angular standard 1° 223: Microplan BELAC 1909-07906

Angular standard 2.5° 222: Microplan BELAC 1909-07894

Angular standard 5° 221: Microplan BELAC 1909-07893

Angular standard 10° 218: Microplan BELAC 2007-07377

Angular standard 20° 219: Microplan BELAC 2007-07378

Angular standard 30° 220: Microplan BELAC 2007-07376

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

**Sensitivity <sup>(1)</sup>** **Ch. A** 1.0000E+00 [sina/sina]

**Ch. B** 9.9999E-01 [sina/sina]

**Maximum Residual Error <sup>(2)</sup>** **Ch. A** 0.0027 [%FS]

**Ch. B** 0.0056 [%FS]

**MPE = 0.01 [%FS]**

## CRITERIA

|Max Residual Err.| + U < |MPE|

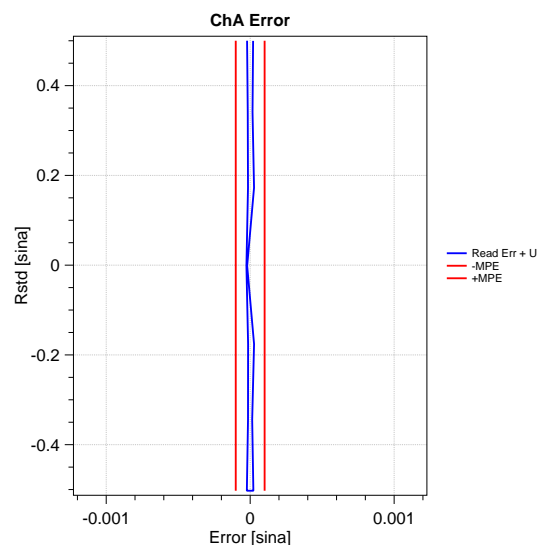
## COMPLIANT

To the Datasheet

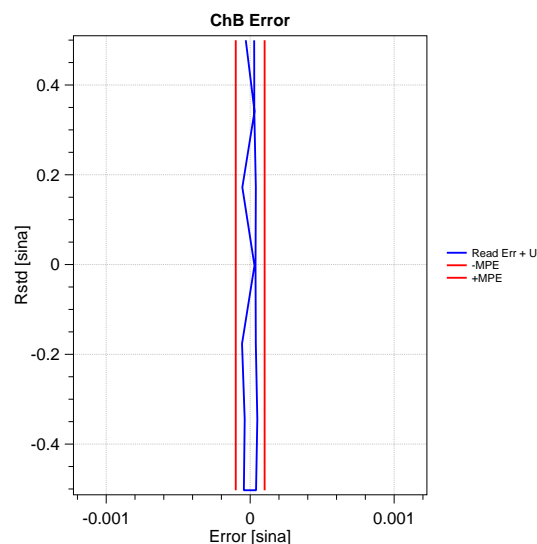
Issue Date: 18.04.2024

CQE: *Mario Bruni*

Ch. A		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.500066	0.000013	0.500074
0.341600	0.000013	0.341604
0.172434	0.000013	0.172436
-0.001807	0.000013	-0.001794
-0.175980	0.000013	-0.175979
-0.344602	0.000013	-0.344600
-0.502604	0.000013	-0.502594
-0.502619	0.000013	-0.502628
-0.344425	0.000013	-0.344426
-0.175768	0.000013	-0.175782
-0.001616	0.000013	-0.001608
0.172507	0.000013	0.172493
0.341542	0.000013	0.341539
0.499737	0.000013	0.499730



Ch. B		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.499697	0.000025	0.499702
0.341188	0.000025	0.341183
0.172006	0.000025	0.172035
-0.002224	0.000025	-0.002229
-0.176359	0.000025	-0.176327
-0.344910	0.000025	-0.344897
-0.502823	0.000025	-0.502804
-0.502814	0.000025	-0.502830
-0.344647	0.000025	-0.344672
-0.176016	0.000025	-0.176031
-0.001887	0.000025	-0.001900
0.172235	0.000025	0.172221
0.341279	0.000025	0.341276
0.499538	0.000025	0.499535



- LEGEND**
- (1): Linear factors obtained by means of linear formula according to the least squares method.
  - (2): The errors shows related to residual error on the calibration step applying:
    - linear/polynomial correction + Uncertainty (for analog instrument);
    - polynomial correction (internally applied) + Uncertainty (for digital instrument).
  - (3): Values calculated using linear correction (for analog instrument).
  - (4): Polynomial factors obtained by means of linear multiply regression formula (for analog instrument).
  - (5): Values calculated using polynomial correction (for analog instrument).
  - (6): Reference readings.
  - (7): Instruments readings.

- NOTES:**
- a) % F.S. error is calculated on whole range.
  - b) Resulting error depends on the effects of repeatability (for digital instrument) linearity and hysteresis.
  - c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty (repeatability).

Configured in "Normal mode" (SISGEO MODBUS protocol)

WIRING: see manual



# CALIBRATION REPORT

N. 2405766

**Serial Number:** S241458

**Product Code:** OMDP30V1000

**Model:** MD PROFILE VERT. GAUGE 30°, 1 mt

**Type:** Digital

**Calibration Date:** 18/04/2024 09:06

**Job Number:** 24-00307

**Project Code:** Address #09

## Test Conditions

**Temperature:** 20 ± 0.5 °C

**Humidity:** 54 ± 10%

**Barometric Pressure:** 1011 ± 5 hPa

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: according to the instruments model in the current revision or in previous versions in case of discontinued instruments)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

**The metrological traceability of the reference standards is guaranteed by the calibration certificates issued by laboratories accredited by an accreditation body signatory of Mutual Recognition Agreements (EA - European cooperative for Accreditation, IAF - International Accreditation Forum, ILAC - International Laboratory Accreditation Cooperation for Mutual Recognition Agreements)**

**Sisgeo's Standard References:**

Electronic level 210: Microplan, LE602, C.T. LAT172LE0002/22

Angular standard 1° 223: Microplan BELAC 1909-07906

Angular standard 2.5° 222: Microplan BELAC 1909-07894

Angular standard 5° 221: Microplan BELAC 1909-07893

Angular standard 10° 218: Microplan BELAC 2007-07377

Angular standard 20° 219: Microplan BELAC 2007-07378

Angular standard 30° 220: Microplan BELAC 2007-07376

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

**Sensitivity <sup>(1)</sup>**

**Ch. A** 1.0000E+00 [sina/sina]

**Ch. B** 1.0000E+00 [sina/sina]

**Maximum Residual Error <sup>(2)</sup>**

**Ch. A** 0.0032 [%FS]

**Ch. B** 0.0047 [%FS]

**MPE = 0.01 [%FS]**

**CRITERIA**

|Max Residual Err.| + U < |MPE|

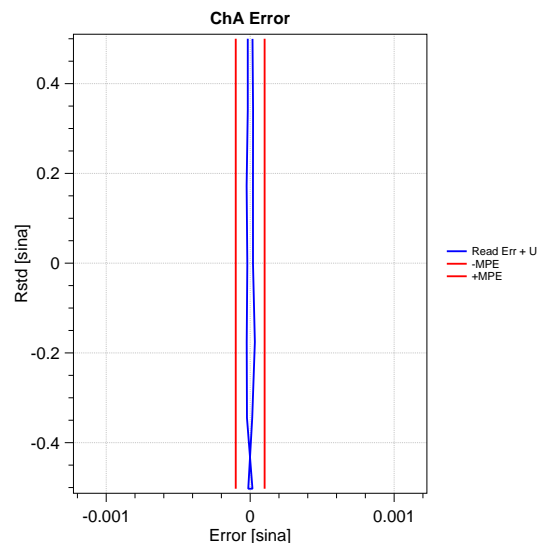
**COMPLIANT**

To the Datasheet

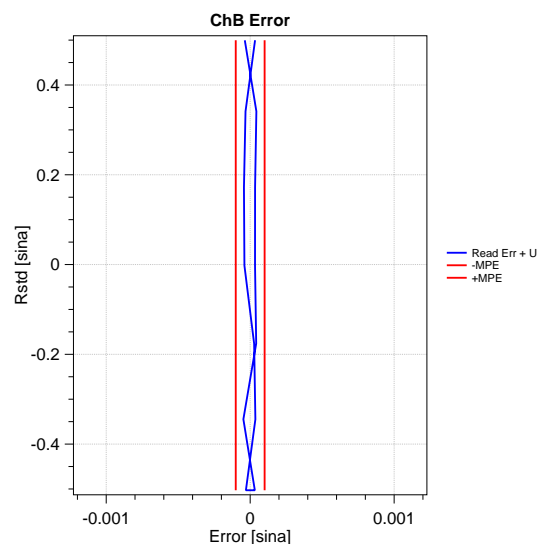
Issue Date: 18.04.2024

CQE: *Mario Bruni*

Ch. A		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.500066	0.000011	0.500072
0.341600	0.000011	0.341606
0.172434	0.000011	0.172448
-0.001807	0.000011	-0.001798
-0.175980	0.000011	-0.175967
-0.344602	0.000011	-0.344590
-0.502604	0.000011	-0.502609
-0.502619	0.000011	-0.502617
-0.344425	0.000011	-0.344429
-0.175768	0.000011	-0.175790
-0.001616	0.000011	-0.001625
0.172507	0.000011	0.172498
0.341542	0.000011	0.341533
0.499737	0.000011	0.499731



Ch. B		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.499697	0.000026	0.499689
0.341188	0.000026	0.341195
0.172006	0.000026	0.172023
-0.002224	0.000026	-0.002210
-0.176359	0.000026	-0.176360
-0.344910	0.000026	-0.344920
-0.502823	0.000026	-0.502820
-0.502814	0.000026	-0.502820
-0.344647	0.000026	-0.344626
-0.176016	0.000026	-0.176032
-0.001887	0.000026	-0.001894
0.172235	0.000026	0.172228
0.341279	0.000026	0.341263
0.499538	0.000026	0.499549



- LEGEND**
- (1): Linear factors obtained by means of linear formula according to the least squares method.
  - (2): The errors shows related to residual error on the calibration step applying:
    - linear/polynomial correction + Uncertainty (for analog instrument);
    - polynomial correction (internally applied) + Uncertainty (for digital instrument).
  - (3): Values calculated using linear correction (for analog instrument).
  - (4): Polynomial factors obtained by means of linear multiply regression formula (for analog instrument).
  - (5): Values calculated using polynomial correction (for analog instrument).
  - (6): Reference readings.
  - (7): Instruments readings.

- NOTES:**
- a) % F.S. error is calculated on whole range.
  - b) Resulting error depends on the effects of repeatability (for digital instrument) linearity and hysteresis.
  - c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty (repeatability).

Configured in "Normal mode" (SISGEO MODBUS protocol)

WIRING: see manual



# CALIBRATION REPORT

N. 2405767

**Serial Number:** S241459

**Product Code:** OMDP30V1000

**Model:** MD PROFILE VERT. GAUGE 30°, 1 mt

**Type:** Digital

**Calibration Date:** 18/04/2024 09:32

**Job Number:** 24-00307

**Project Code:** Address #10

## Test Conditions

**Temperature:** 20 ± 0.5 °C

**Humidity:** 54 ± 10%

**Barometric Pressure:** 1011 ± 5 hPa

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: according to the instruments model in the current revision or in previous versions in case of discontinued instruments)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

**The metrological traceability of the reference standards is guaranteed by the calibration certificates issued by laboratories accredited by an accreditation body signatory of Mutual Recognition Agreements (EA - European cooperative for Accreditation, IAF - International Accreditation Forum, ILAC - International Laboratory Accreditation Cooperation for Mutual Recognition Agreements)**  
**Sisgeo's Standard References:**

Electronic level 210: Microplan, LE602, C.T. LAT172LE0002/22

Angular standard 1° 223: Microplan BELAC 1909-07906

Angular standard 2.5° 222: Microplan BELAC 1909-07894

Angular standard 5° 221: Microplan BELAC 1909-07893

Angular standard 10° 218: Microplan BELAC 2007-07377

Angular standard 20° 219: Microplan BELAC 2007-07378

Angular standard 30° 220: Microplan BELAC 2007-07376

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

<b>Sensitivity <sup>(1)</sup></b>	<b>Ch. A</b>	1.0000E+00 [sina/sina]
	<b>Ch. B</b>	9.9998E-01 [sina/sina]

<b>Maximum Residual Error <sup>(2)</sup></b>	<b>Ch. A</b>	0.0030 [%FS]
	<b>Ch. B</b>	0.0057 [%FS]

**MPE = 0.01 [%FS]**

## CRITERIA

|Max Residual Err.| + U < |MPE|

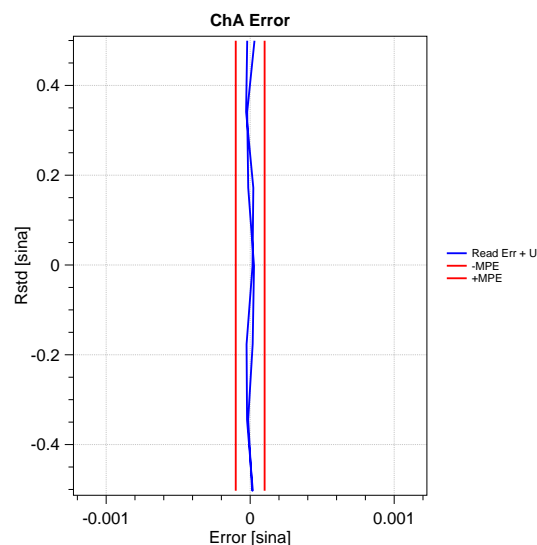
## COMPLIANT

To the Datasheet

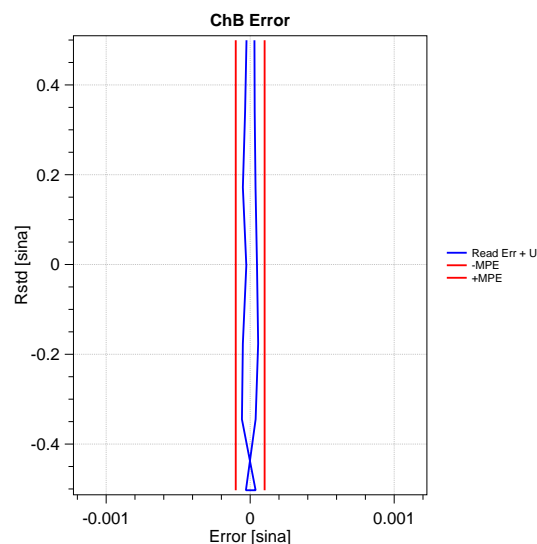
Issue Date: 18.04.2024

CQE: *Mario Bruni*

Ch. A		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.499531	0.000013	0.499539
0.341004	0.000013	0.341019
0.171835	0.000013	0.171827
-0.002347	0.000013	-0.002350
-0.176451	0.000013	-0.176439
-0.344964	0.000013	-0.344956
-0.502824	0.000013	-0.502829
-0.502802	0.000013	-0.502803
-0.344643	0.000013	-0.344642
-0.176025	0.000013	-0.176029
-0.001902	0.000013	-0.001916
0.172222	0.000013	0.172222
0.341260	0.000013	0.341268
0.499529	0.000013	0.499512



Ch. B		
Rstd <sup>(6)</sup> [sina]	U [sina]	Read <sup>(7)</sup> [sina]
0.499525	0.000023	0.499527
0.341001	0.000023	0.341013
0.171832	0.000023	0.171860
-0.002355	0.000023	-0.002351
-0.176471	0.000023	-0.176444
-0.344987	0.000023	-0.344953
-0.502861	0.000023	-0.502875
-0.502843	0.000023	-0.502837
-0.344688	0.000023	-0.344702
-0.176073	0.000023	-0.176105
-0.001961	0.000023	-0.001985
0.172152	0.000023	0.172138
0.341178	0.000023	0.341170
0.499453	0.000023	0.499447



- LEGEND**
- (1): Linear factors obtained by means of linear formula according to the least squares method.
  - (2): The errors shows related to residual error on the calibration step applying:
    - linear/polynomial correction + Uncertainty (for analog instrument);
    - polynomial correction (internally applied) + Uncertainty (for digital instrument).
  - (3): Values calculated using linear correction (for analog instrument).
  - (4): Polynomial factors obtained by means of linear multiply regression formula (for analog instrument).
  - (5): Values calculated using polynomial correction (for analog instrument).
  - (6): Reference readings.
  - (7): Instruments readings.

- NOTES:**
- a) % F.S. error is calculated on whole range.
  - b) Resulting error depends on the effects of repeatability (for digital instrument) linearity and hysteresis.
  - c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty (repeatability).

Configured in "Normal mode" (SISGEO MODBUS protocol)

WIRING: see manual



# CALIBRATION REPORT

N. 2206142

**Serial Number:** S221828

**Product Code:** OMDP30V1000

**Model:** MD PROFILE VERT. GAUGE 30°, 1 mt

**Type:** Digital

**Calibration Date:** 19/07/2022 11:03

**Job Number:** 22-00717

**Project Code:** Address #01

## Test Conditions

**Temperature:** 22 ± 0.5 °C

**Humidity:** 54 ± 10%

**Barometric Pressure:** 999 ± 5 hPa

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: in accordance to the instruments model)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

## Traceability is through first line standards, validated by certificates of calibration

Electronic level 210: Microplan, LE602, LAT 172 LE0014/18

Multimeter 171: Keysight Technologies, 3458A, LAT 046 365165

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98 and to EA-4/02. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

<b>Linear Sensitivity Factors: (1)</b>		<b>Ch. A</b>	1.0000E+00 [sina/sina]	<b>B=</b>	5.3781E-06 [sina]
		<b>Ch. B</b>	1.0000E+00 [sina/sina]		-2.1764E-05 [sina]
<b>Maximum Linear Error + U: (2)</b>		<b>Ch. A</b>	0.0084 [%FS]		
		<b>Ch. B</b>	0.0125 [%FS]		
<b>Final Linear Reading: (3)</b>		$R_{cl} = A \cdot R_{meas} + B$ [sina]			
<b>Polynomial Sensitivity Factors: (4)</b>	<b>Ch. A</b>	<b>A=</b>	-2.8825E-05 [sina/sina <sup>3</sup> ]	<b>B=</b>	2.7320E-04 [sina/sina <sup>2</sup> ]
	<b>Ch. B</b>		6.1899E-04 [sina/sina <sup>3</sup> ]	<b>C=</b>	1.0000E+00 [sina/sina]
				<b>D=</b>	-2.5751E-05 [sina]
					-3.4240E-05 [sina]
<b>Maximum Polynomial Error + U: (2)</b>		<b>Ch. A</b>	0.0065 [%FS]		
		<b>Ch. B</b>	0.0108 [%FS]		
<b>MPE Pol. = 0.025 [%FS]</b>					
<b>Final Polynomial Readings: (5)</b>		$R_{cp} = A \cdot R_{meas}^3 + B \cdot R_{meas}^2 + C \cdot R_{meas} + D$ [sina]			

## CRITERIA

|Max Pol. Err.| + U < |MPE Pol.|

## COMPLIANT

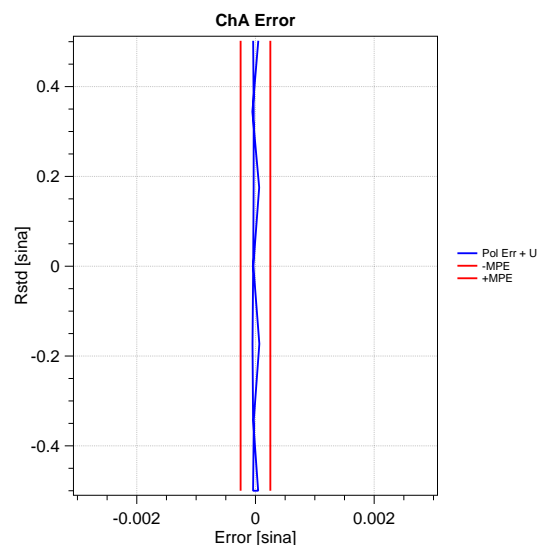
To the Datasheet

Issue Date: 19.07.2022

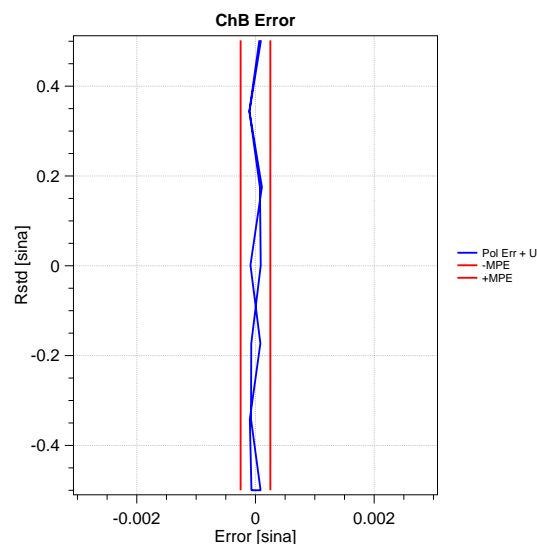
CQE: *Mario Bruni*



Ch. A				
Rstd <sup>(6)</sup> [sina]	Rmeas <sup>(7)</sup> [sina]	U [sina]	Rcl <sup>(3)</sup> [sina]	Rcp <sup>(5)</sup> [sina]
0.501981	0.501947	0.000028	0.501956	0.501993
0.343658	0.343651	0.000028	0.343659	0.343661
0.174729	0.174748	0.000028	0.174755	0.174733
0.000653	0.000690	0.000028	0.000695	0.000664
-0.173394	-0.173353	0.000028	-0.173348	-0.173372
-0.341968	-0.341958	0.000028	-0.341955	-0.341955
-0.499955	-0.500013	0.000028	-0.500011	-0.499972
-0.499960	-0.499988	0.000028	-0.499986	-0.499947
-0.341637	-0.341640	0.000028	-0.341637	-0.341637
-0.172881	-0.172899	0.000028	-0.172895	-0.172919
0.001249	0.001283	0.000028	0.001288	0.001257
0.175328	0.175308	0.000028	0.175315	0.175293
0.344135	0.344150	0.000028	0.344158	0.344159
0.502143	0.502078	0.000028	0.502087	0.502123



Ch. B				
Rstd <sup>(6)</sup> [sina]	Rmeas <sup>(7)</sup> [sina]	U [sina]	Rcl <sup>(3)</sup> [sina]	Rcp <sup>(5)</sup> [sina]
0.502095	0.502053	0.000065	0.502035	0.502068
0.343799	0.343871	0.000065	0.343852	0.343836
0.174893	0.174931	0.000065	0.174910	0.174883
0.000814	0.000825	0.000065	0.000803	0.000791
-0.173233	-0.173213	0.000065	-0.173236	-0.173227
-0.341810	-0.341793	0.000065	-0.341817	-0.341800
-0.499825	-0.499819	0.000065	-0.499844	-0.499846
-0.499839	-0.499809	0.000065	-0.499834	-0.499837
-0.341501	-0.341464	0.000065	-0.341488	-0.341472
-0.172728	-0.172731	0.000065	-0.172754	-0.172746
0.001399	0.001453	0.000065	0.001431	0.001418
0.175470	0.175475	0.000065	0.175454	0.175427
0.344273	0.344346	0.000065	0.344327	0.344311
0.502257	0.502243	0.000065	0.502224	0.502257



**LEGEND**

- (1): Linear factors obtained by means of linear formula according to the least squares method.
- (2): The errors shows related to residual error on the calibration step applying linear/polynomial correction + Uncertainty.
- (3): Values calculated using linear correction.
- (4): Polynomial factors obtained by means of linear multiply regression formula.
- (5): Values calculated using polynomial correction.
- (6): Reference readings.
- (7): Instruments readings.

**NOTES:**

- a) % F.S. error is calculated on whole range.
- b) Resulting error depends on the effects of linearity and hysteresis.
- c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty.

Configured in "Normal mode" (SISGEO MODBUS protocol)

WIRING: see manual



# CALIBRATION REPORT

N. 2206152

**Serial Number:** S221829

**Product Code:** OMDP30V1000

**Model:** MD PROFILE VERT. GAUGE 30°, 1 mt

**Type:** Digital

**Calibration Date:** 19/07/2022 11:34

**Job Number:** 22-00717

**Project Code:** Address #02

## Test Conditions

**Temperature:** 22 ± 0.5 °C

**Humidity:** 54 ± 10%

**Barometric Pressure:** 999 ± 5 hPa

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: in accordance to the instruments model)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

## Traceability is through first line standards, validated by certificates of calibration

Electronic level 210: Microplan, LE602, LAT 172 LE0014/18

Multimeter 171: Keysight Technologies, 3458A, LAT 046 365165

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98 and to EA-4/02. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

Linear Sensitivity Factors: <sup>(1)</sup>		Ch. A	1.0000E+00 [sina/sina]	B=	-1.0834E-04 [sina]				
		Ch. B	9.9999E-01 [sina/sina]		-1.2096E-04 [sina]				
Maximum Linear Error + U: <sup>(2)</sup>		Ch. A	0.0120 [%FS]						
		Ch. B	0.0148 [%FS]						
Final Linear Reading: <sup>(3)</sup>		Rcl = A*Rmeas + B [sina]							
Polynomial Sensitivity Factors: <sup>(4)</sup>	Ch. A	A=	3.5366E-04 [sina/sina <sup>3</sup> ]	B=	5.3664E-04 [sina/sina <sup>2</sup> ]	C=	9.9994E-01 [sina/sina]	D=	-1.6955E-04 [sina]
	Ch. B		6.2905E-04 [sina/sina <sup>3</sup> ]		-2.2305E-04 [sina/sina <sup>2</sup> ]		9.9987E-01 [sina/sina]		-9.5668E-05 [sina]
Maximum Polynomial Error + U: <sup>(2)</sup>		Ch. A	0.0044 [%FS]						
		Ch. B	0.0100 [%FS]						
MPE Pol. = 0.025 [%FS]									
Final Polynomial Readings: <sup>(5)</sup>		Rcp = A*Rmeas <sup>3</sup> + B*Rmeas <sup>2</sup> + C*Rmeas + D [sina]							

## CRITERIA

|Max Pol. Err.| + U < |MPE Pol.|

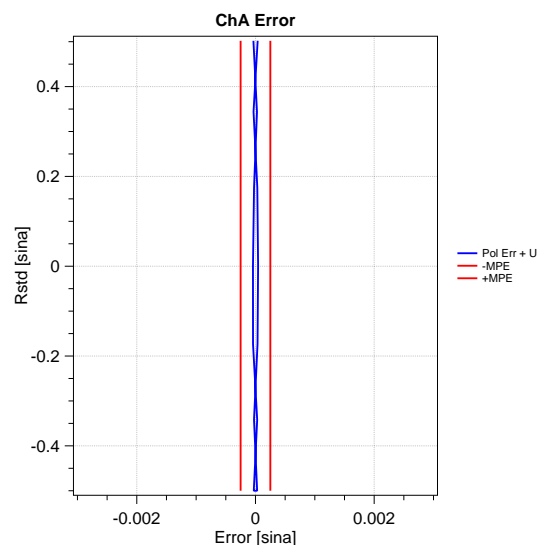
## COMPLIANT

To the Datasheet

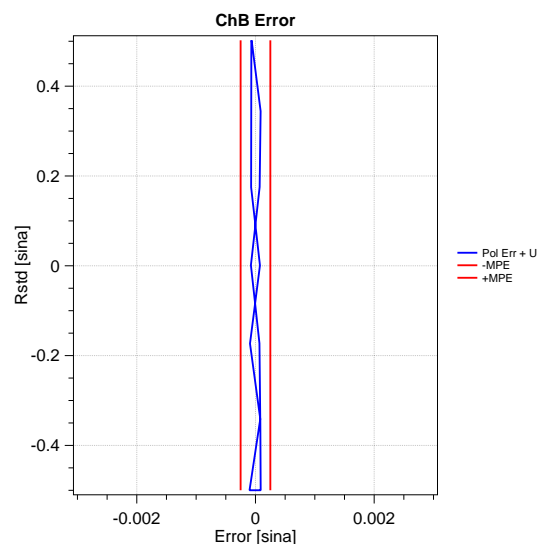
Issue Date: 19.07.2022

CQE: *Mario Bruni*

Ch. A				
Rstd <sup>(6)</sup> [sina]	Rmeas <sup>(7)</sup> [sina]	U [sina]	Rcl <sup>(3)</sup> [sina]	Rcp <sup>(5)</sup> [sina]
0.501981	0.502015	0.000021	0.501911	0.501995
0.343658	0.343767	0.000021	0.343662	0.343654
0.174729	0.174894	0.000021	0.174787	0.174732
0.000653	0.000844	0.000021	0.000735	0.000674
-0.173394	-0.173230	0.000021	-0.173340	-0.173374
-0.341968	-0.341875	0.000021	-0.341986	-0.341975
-0.499955	-0.499899	0.000021	-0.500012	-0.499948
-0.499960	-0.499918	0.000021	-0.500030	-0.499967
-0.341637	-0.341534	0.000021	-0.341645	-0.341634
-0.172881	-0.172750	0.000021	-0.172860	-0.172895
0.001249	0.001396	0.000021	0.001287	0.001226
0.175328	0.175480	0.000021	0.175373	0.175318
0.344135	0.344259	0.000021	0.344153	0.344146
0.502143	0.502148	0.000021	0.502044	0.502127



Ch. B				
Rstd <sup>(6)</sup> [sina]	Rmeas <sup>(7)</sup> [sina]	U [sina]	Rcl <sup>(3)</sup> [sina]	Rcp <sup>(5)</sup> [sina]
0.502095	0.502237	0.000064	0.502113	0.502100
0.343799	0.343947	0.000064	0.343824	0.343807
0.174893	0.175024	0.000064	0.174902	0.174902
0.000814	0.000898	0.000064	0.000777	0.000803
-0.173233	-0.173121	0.000064	-0.173241	-0.173205
-0.341810	-0.341725	0.000064	-0.341844	-0.341828
-0.499825	-0.499683	0.000064	-0.499801	-0.499849
-0.499839	-0.499637	0.000064	-0.499755	-0.499803
-0.341501	-0.341415	0.000064	-0.341534	-0.341518
-0.172728	-0.172648	0.000064	-0.172768	-0.172731
0.001399	0.001508	0.000064	0.001387	0.001412
0.175470	0.175585	0.000064	0.175463	0.175464
0.344273	0.344391	0.000064	0.344268	0.344250
0.502257	0.502395	0.000064	0.502271	0.502259



**LEGEND**

- (1): Linear factors obtained by means of linear formula according to the least squares method.
- (2): The errors shows related to residual error on the calibration step applying linear/polynomial correction + Uncertainty.
- (3): Values calculated using linear correction.
- (4): Polynomial factors obtained by means of linear multiply regression formula.
- (5): Values calculated using polynomial correction.
- (6): Reference readings.
- (7): Instruments readings.

**NOTES:**

- a) % F.S. error is calculated on whole range.
- b) Resulting error depends on the effects of linearity and hysteresis.
- c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty.

Configured in "Normal mode" (SISGEO MODBUS protocol)

WIRING: see manual



# CALIBRATION REPORT

N. 2206153

**Serial Number:** S221830

**Product Code:** OMDP30V1000

**Model:** MD PROFILE VERT. GAUGE 30°, 1 mt

**Type:** Digital

**Calibration Date:** 19/07/2022 11:34

**Job Number:** 22-00717

**Project Code:** Address #03

## Test Conditions

**Temperature:** 22 ± 0.5 °C

**Humidity:** 54 ± 10%

**Barometric Pressure:** 999 ± 5 hPa

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: in accordance to the instruments model)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

## Traceability is through first line standards, validated by certificates of calibration

Electronic level 210: Microplan, LE602, LAT 172 LE0014/18

Multimeter 171: Keysight Technologies, 3458A, LAT 046 365165

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98 and to EA-4/02. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

<b>Linear Sensitivity Factors: <sup>(1)</sup></b>		<b>Ch. A</b>	1.0000E+00 [sina/sina]	<b>B=</b>	-6.8424E-05 [sina]
		<b>Ch. B</b>	1.0000E+00 [sina/sina]		-1.0190E-04 [sina]
<b>Maximum Linear Error + U: <sup>(2)</sup></b>		<b>Ch. A</b>	0.0090 [%FS]		
		<b>Ch. B</b>	0.0127 [%FS]		
<b>Final Linear Reading: <sup>(3)</sup></b>		Rcl = A*Rmeas + B [sina]			
<b>Polynomial Sensitivity Factors: <sup>(4)</sup></b>	<b>Ch. A</b>	A=	5.0560E-04 [sina/sina <sup>3</sup> ]	B=	3.8676E-04 [sina/sina <sup>2</sup> ]
	<b>Ch. B</b>		4.7108E-04 [sina/sina <sup>3</sup> ]	C=	9.9990E-01 [sina/sina]
					D=
<b>Maximum Polynomial Error + U: <sup>(2)</sup></b>		<b>Ch. A</b>	0.0053 [%FS]		-1.1258E-04 [sina]
		<b>Ch. B</b>	0.0107 [%FS]		-7.1842E-05 [sina]
<b>MPE Pol. = 0.025 [%FS]</b>					
<b>Final Polynomial Readings: <sup>(5)</sup></b>		Rcp = A*Rmeas <sup>3</sup> + B*Rmeas <sup>2</sup> + C*Rmeas + D [sina]			

## CRITERIA

|Max Pol. Err.| + U < |MPE Pol.|

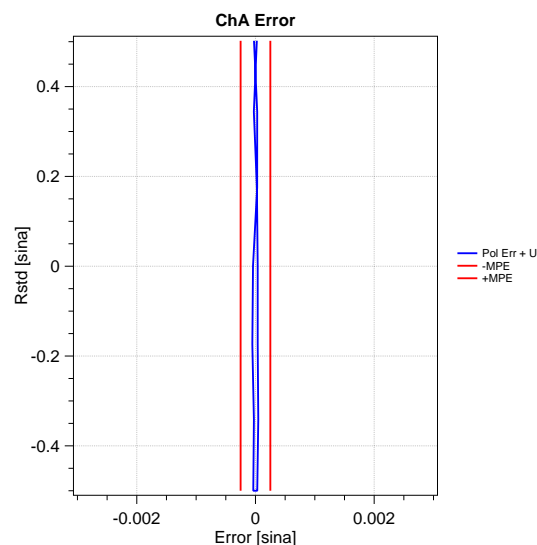
## COMPLIANT

To the Datasheet

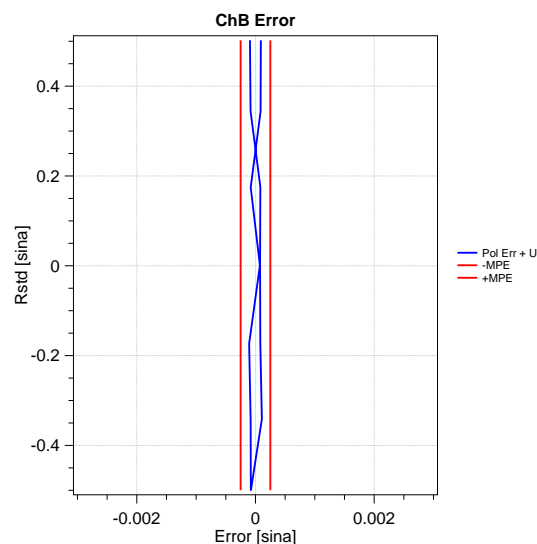
Issue Date: 19.07.2022

CQE: *Mario Bruni*

Ch. A				
Rstd <sup>(6)</sup> [sina]	Rmeas <sup>(7)</sup> [sina]	U [sina]	Rcl <sup>(3)</sup> [sina]	Rcp <sup>(5)</sup> [sina]
0.501981	0.501983	0.000023	0.501916	0.501984
0.343658	0.343732	0.000023	0.343664	0.343652
0.174729	0.174838	0.000023	0.174770	0.174723
0.000653	0.000785	0.000023	0.000716	0.000672
-0.173394	-0.173277	0.000023	-0.173346	-0.173364
-0.341968	-0.341909	0.000023	-0.341979	-0.341964
-0.499955	-0.499910	0.000023	-0.499980	-0.499941
-0.499960	-0.499936	0.000023	-0.500006	-0.499967
-0.341637	-0.341607	0.000023	-0.341676	-0.341661
-0.172881	-0.172809	0.000023	-0.172878	-0.172896
0.001249	0.001347	0.000023	0.001279	0.001235
0.175328	0.175442	0.000023	0.175374	0.175327
0.344135	0.344219	0.000023	0.344151	0.344139
0.502143	0.502143	0.000023	0.502075	0.502143



Ch. B				
Rstd <sup>(6)</sup> [sina]	Rmeas <sup>(7)</sup> [sina]	U [sina]	Rcl <sup>(3)</sup> [sina]	Rcp <sup>(5)</sup> [sina]
0.502095	0.502204	0.000073	0.502101	0.502078
0.343799	0.343903	0.000073	0.343800	0.343787
0.174893	0.174994	0.000073	0.174891	0.174900
0.000814	0.000885	0.000073	0.000783	0.000813
-0.173233	-0.173134	0.000073	-0.173235	-0.173200
-0.341810	-0.341712	0.000073	-0.341813	-0.341802
-0.499825	-0.499671	0.000073	-0.499771	-0.499821
-0.499839	-0.499686	0.000073	-0.499786	-0.499836
-0.341501	-0.341446	0.000073	-0.341547	-0.341535
-0.172728	-0.172670	0.000073	-0.172772	-0.172736
0.001399	0.001467	0.000073	0.001365	0.001395
0.175470	0.175555	0.000073	0.175453	0.175461
0.344273	0.344399	0.000073	0.344296	0.344282
0.502257	0.502402	0.000073	0.502299	0.502276



**LEGEND**

- (1): Linear factors obtained by means of linear formula according to the least squares method.
- (2): The errors shows related to residual error on the calibration step applying linear/polynomial correction + Uncertainty.
- (3): Values calculated using linear correction.
- (4): Polynomial factors obtained by means of linear multiply regression formula.
- (5): Values calculated using polynomial correction.
- (6): Reference readings.
- (7): Instruments readings.

**NOTES:**

- a) % F.S. error is calculated on whole range.
- b) Resulting error depends on the effects of linearity and hysteresis.
- c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty.

Configured in "Normal mode" (SISGEO MODBUS protocol)

WIRING: see manual



# CALIBRATION REPORT

N. 2206154

**Serial Number:** S221831

**Product Code:** OMDP30V1000

**Model:** MD PROFILE VERT. GAUGE 30°, 1 mt

**Type:** Digital

**Calibration Date:** 19/07/2022 11:34

**Job Number:** 22-00717

**Project Code:** Address #04

## Test Conditions

**Temperature:** 22 ± 0.5 °C

**Humidity:** 54 ± 10%

**Barometric Pressure:** 999 ± 5 hPa

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: in accordance to the instruments model)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

## Traceability is through first line standards, validated by certificates of calibration

Electronic level 210: Microplan, LE602, LAT 172 LE0014/18

Multimeter 171: Keysight Technologies, 3458A, LAT 046 365165

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98 and to EA-4/02. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

<b>Linear Sensitivity Factors: <sup>(1)</sup></b>		<b>Ch. A</b>	9.9999E-01 [sina/sina]	<b>B=</b>	-2.2269E-05 [sina]
		<b>Ch. B</b>	9.9999E-01 [sina/sina]		-3.2767E-05 [sina]
<b>Maximum Linear Error + U: <sup>(2)</sup></b>		<b>Ch. A</b>	0.0106 [%FS]		
		<b>Ch. B</b>	0.0106 [%FS]		
<b>Final Linear Reading: <sup>(3)</sup></b>		Rcl = A*Rmeas + B [sina]			
<b>Polynomial Sensitivity Factors: <sup>(4)</sup></b>	<b>Ch. A</b>	4.2665E-04 [sina/sina <sup>3</sup> ]	4.2047E-04 [sina/sina <sup>2</sup> ]	9.9990E-01 [sina/sina]	-7.0252E-05 [sina]
	<b>Ch. B</b>	9.4717E-04 [sina/sina <sup>3</sup> ]	-2.0041E-05 [sina/sina <sup>2</sup> ]	9.9980E-01 [sina/sina]	-3.0655E-05 [sina]
<b>Maximum Polynomial Error + U: <sup>(2)</sup></b>		<b>Ch. A</b>	0.0048 [%FS]		
		<b>Ch. B</b>	0.0088 [%FS]		
<b>MPE Pol. = 0.025 [%FS]</b>					
<b>Final Polynomial Readings: <sup>(5)</sup></b>		Rcp = A*Rmeas <sup>3</sup> + B*Rmeas <sup>2</sup> + C*Rmeas + D [sina]			

## CRITERIA

|Max Pol. Err.| + U < |MPE Pol.|

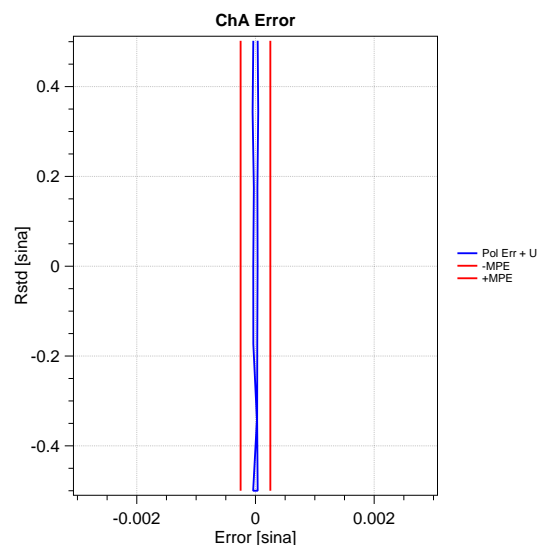
## COMPLIANT

To the Datasheet

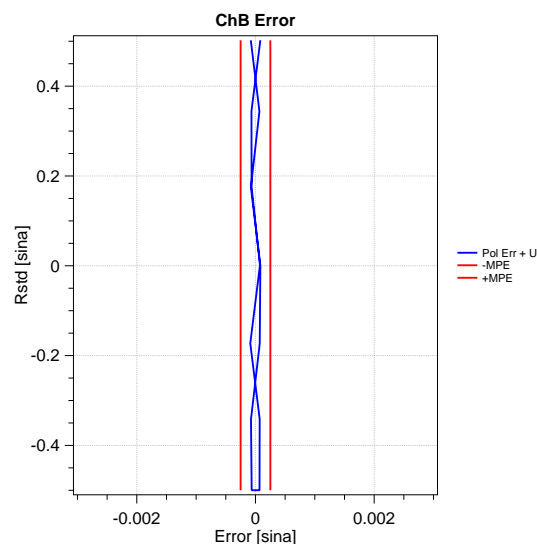
Issue Date: 19.07.2022

CQE: *Mario Bruni*

Ch. A				
Rstd <sup>(6)</sup> [sina]	Rmeas <sup>(7)</sup> [sina]	U [sina]	Rcl <sup>(3)</sup> [sina]	Rcp <sup>(5)</sup> [sina]
0.501981	0.501955	0.000023	0.501926	0.501995
0.343658	0.343721	0.000023	0.343694	0.343684
0.174729	0.174806	0.000023	0.174781	0.174734
0.000653	0.000738	0.000023	0.000715	0.000667
-0.173394	-0.173338	0.000023	-0.173358	-0.173381
-0.341968	-0.341965	0.000023	-0.341982	-0.341969
-0.499955	-0.499970	0.000023	-0.499985	-0.499939
-0.499960	-0.500005	0.000023	-0.500020	-0.499974
-0.341637	-0.341638	0.000023	-0.341655	-0.341642
-0.172881	-0.172846	0.000023	-0.172866	-0.172889
0.001249	0.001307	0.000023	0.001284	0.001236
0.175328	0.175390	0.000023	0.175366	0.175318
0.344135	0.344149	0.000023	0.344121	0.344111
0.502143	0.502089	0.000023	0.502059	0.502129



Ch. B				
Rstd <sup>(6)</sup> [sina]	Rmeas <sup>(7)</sup> [sina]	U [sina]	Rcl <sup>(3)</sup> [sina]	Rcp <sup>(5)</sup> [sina]
0.502095	0.502126	0.000061	0.502088	0.502112
0.343799	0.343856	0.000061	0.343819	0.343794
0.174893	0.174969	0.000061	0.174935	0.174909
0.000814	0.000824	0.000061	0.000791	0.000793
-0.173233	-0.173241	0.000061	-0.173272	-0.173244
-0.341810	-0.341792	0.000061	-0.341821	-0.341796
-0.499825	-0.499767	0.000061	-0.499794	-0.499823
-0.499839	-0.499790	0.000061	-0.499817	-0.499846
-0.341501	-0.341507	0.000061	-0.341536	-0.341511
-0.172728	-0.172700	0.000061	-0.172731	-0.172702
0.001399	0.001416	0.000061	0.001383	0.001385
0.175470	0.175535	0.000061	0.175500	0.175474
0.344273	0.344341	0.000061	0.344304	0.344279
0.502257	0.502251	0.000061	0.502213	0.502237



**LEGEND**

(1): Linear factors obtained by means of linear formula according to the least squares method.  
 (2): The errors shows related to residual error on the calibration step applying linear/polynomial correction + Uncertainty.  
 (3): Values calculated using linear correction.  
 (4): Polynomial factors obtained by means of linear multiply regression formula.  
 (5): Values calculated using polynomial correction.  
 (6): Reference readings.  
 (7): Instruments readings.

**NOTES:**

a) % F.S. error is calculated on whole range.  
 b) Resulting error depends on the effects of linearity and hysteresis.  
 c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty.

Configured in "Normal mode" (SISGEO MODBUS protocol)

WIRING: see manual



# CALIBRATION REPORT

N. 2206146

**Serial Number:** S221832

**Product Code:** OMDP30V1000

**Model:** MD PROFILE VERT. GAUGE 30°, 1 mt

**Type:** Digital

**Calibration Date:** 19/07/2022 11:18

**Job Number:** 22-00717

**Project Code:** Address #05

## Test Conditions

**Temperature:** 22 ± 0.5 °C

**Humidity:** 54 ± 10%

**Barometric Pressure:** 999 ± 5 hPa

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: in accordance to the instruments model)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

## Traceability is through first line standards, validated by certificates of calibration

Electronic level 210: Microplan, LE602, LAT 172 LE0014/18

Multimeter 171: Keysight Technologies, 3458A, LAT 046 365165

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98 and to EA-4/02. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

<b>Linear Sensitivity Factors: <sup>(1)</sup></b>		<b>Ch. A</b>	9.9998E-01 [sina/sina]	<b>B=</b>	-2.3580E-05 [sina]
		<b>Ch. B</b>	9.9999E-01 [sina/sina]		-1.3443E-05 [sina]
<b>Maximum Linear Error + U: <sup>(2)</sup></b>		<b>Ch. A</b>	0.0068 [%FS]		
		<b>Ch. B</b>	0.0119 [%FS]		
<b>Final Linear Reading: <sup>(3)</sup></b>		$R_{cl} = A \cdot R_{meas} + B$ [sina]			
<b>Polynomial Sensitivity Factors: <sup>(4)</sup></b>	<b>Ch. A</b>	<b>A=</b>	5.0181E-04 [sina/sina <sup>3</sup> ]	<b>B=</b>	5.1257E-05 [sina/sina <sup>2</sup> ]
	<b>Ch. B</b>		1.0381E-04 [sina/sina <sup>3</sup> ]	<b>C=</b>	9.9988E-01 [sina/sina]
				<b>D=</b>	-2.9504E-05 [sina]
<b>Maximum Polynomial Error + U: <sup>(2)</sup></b>		<b>Ch. A</b>	0.0078 [%FS]		
		<b>Ch. B</b>	0.0103 [%FS]		
<b>MPE Pol. = 0.025 [%FS]</b>					
<b>Final Polynomial Readings: <sup>(5)</sup></b>		$R_{cp} = A \cdot R_{meas}^3 + B \cdot R_{meas}^2 + C \cdot R_{meas} + D$ [sina]			

## CRITERIA

|Max Pol. Err.| + U < |MPE Pol.|

## COMPLIANT

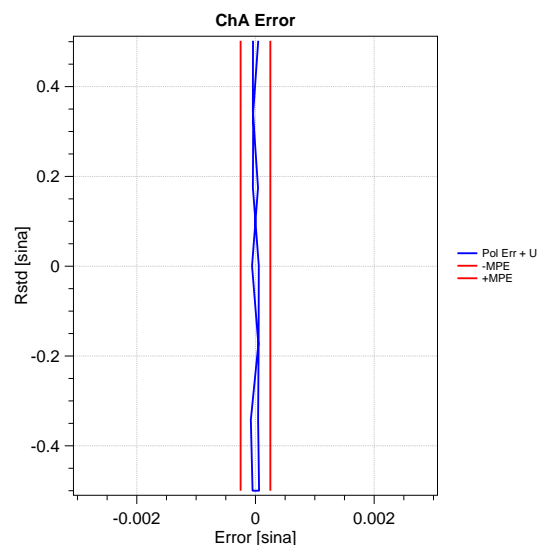
To the Datasheet

Issue Date: 19.07.2022

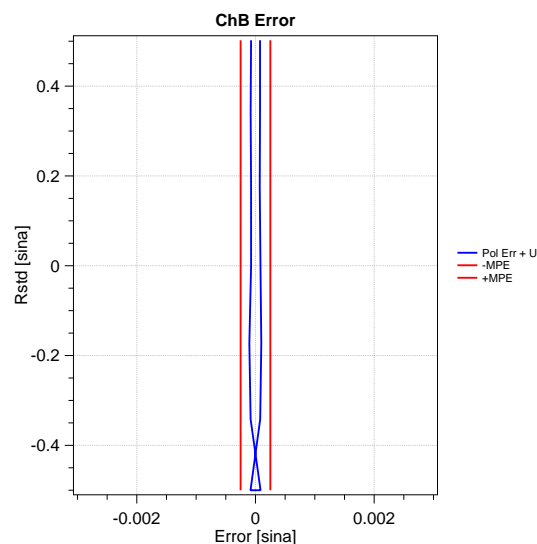
CQE: *Mario Bruni*



Ch. A				
Rstd <sup>(6)</sup> [sina]	Rmeas <sup>(7)</sup> [sina]	U [sina]	Rcl <sup>(3)</sup> [sina]	Rcp <sup>(5)</sup> [sina]
0.502083	0.502101	0.000036	0.502066	0.502088
0.343746	0.343797	0.000036	0.343766	0.343753
0.174810	0.174849	0.000036	0.174822	0.174803
0.000736	0.000787	0.000036	0.000764	0.000758
-0.173345	-0.173347	0.000036	-0.173367	-0.173357
-0.341960	-0.341915	0.000036	-0.341932	-0.341918
-0.500008	-0.499976	0.000036	-0.499989	-0.499996
-0.500032	-0.500037	0.000036	-0.500049	-0.500056
-0.341690	-0.341695	0.000036	-0.341711	-0.341698
-0.172912	-0.172919	0.000036	-0.172939	-0.172929
0.001226	0.001236	0.000036	0.001212	0.001206
0.175314	0.175368	0.000036	0.175341	0.175322
0.344146	0.344192	0.000036	0.344161	0.344148
0.502183	0.502186	0.000036	0.502152	0.502173



Ch. B				
Rstd <sup>(6)</sup> [sina]	Rmeas <sup>(7)</sup> [sina]	U [sina]	Rcl <sup>(3)</sup> [sina]	Rcp <sup>(5)</sup> [sina]
0.502106	0.502154	0.000071	0.502136	0.502109
0.343778	0.343807	0.000071	0.343791	0.343788
0.174850	0.174852	0.000071	0.174837	0.174853
0.000764	0.000754	0.000071	0.000741	0.000766
-0.173323	-0.173301	0.000071	-0.173313	-0.173291
-0.341942	-0.341923	0.000071	-0.341933	-0.341931
-0.499998	-0.499970	0.000071	-0.499979	-0.500012
-0.500021	-0.499967	0.000071	-0.499976	-0.500009
-0.341682	-0.341682	0.000071	-0.341692	-0.341690
-0.172906	-0.172942	0.000071	-0.172954	-0.172932
0.001224	0.001200	0.000071	0.001187	0.001212
0.175305	0.175304	0.000071	0.175289	0.175305
0.344137	0.344152	0.000071	0.344136	0.344132
0.502178	0.502218	0.000071	0.502200	0.502173



- LEGEND**
- (1): Linear factors obtained by means of linear formula according to the least squares method.
  - (2): The errors shows related to residual error on the calibration step applying linear/polynomial correction + Uncertainty.
  - (3): Values calculated using linear correction.
  - (4): Polynomial factors obtained by means of linear multiply regression formula.
  - (5): Values calculated using polynomial correction.
  - (6): Reference readings.
  - (7): Instruments readings.

- NOTES:**
- a) % F.S. error is calculated on whole range.
  - b) Resulting error depends on the effects of linearity and hysteresis.
  - c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty.

Configured in "Normal mode" (SISGEO MODBUS protocol)

WIRING: see manual



# CALIBRATION REPORT

N. 2206147

**Serial Number:** S221833

**Product Code:** OMDP30V1000

**Model:** MD PROFILE VERT. GAUGE 30°, 1 mt

**Type:** Digital

**Calibration Date:** 19/07/2022 11:18

**Job Number:** 22-00717

**Project Code:** Address #06

## Test Conditions

**Temperature:** 22 ± 0.5 °C

**Humidity:** 54 ± 10%

**Barometric Pressure:** 999 ± 5 hPa

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: in accordance to the instruments model)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

## Traceability is through first line standards, validated by certificates of calibration

Electronic level 210: Microplan, LE602, LAT 172 LE0014/18

Multimeter 171: Keysight Technologies, 3458A, LAT 046 365165

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98 and to EA-4/02. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

Linear Sensitivity Factors: <sup>(1)</sup>		Ch. A	9.9999E-01 [sina/sina]	A=	9.9999E-01 [sina/sina]	B=	-9.5697E-05 [sina]		
		Ch. B			9.9999E-01 [sina/sina]		-8.6716E-05 [sina]		
Maximum Linear Error + U: <sup>(2)</sup>		Ch. A	0.0086 [%FS]						
		Ch. B	0.0133 [%FS]						
Final Linear Reading: <sup>(3)</sup>		Rcl = A*Rmeas + B [sina]							
Polynomial Sensitivity Factors: <sup>(4)</sup>	Ch. A	A=	1.6098E-04 [sina/sina <sup>3</sup> ]	B=	2.7439E-04 [sina/sina <sup>2</sup> ]	C=	9.9996E-01 [sina/sina]	D=	-1.2700E-04 [sina]
	Ch. B		4.4871E-04 [sina/sina <sup>3</sup> ]		-3.9197E-04 [sina/sina <sup>2</sup> ]		9.9990E-01 [sina/sina]		-4.2118E-05 [sina]
Maximum Polynomial Error + U: <sup>(2)</sup>		Ch. A	0.0057 [%FS]						
		Ch. B	0.0110 [%FS]						
MPE Pol. = 0.025 [%FS]									
Final Polynomial Readings: <sup>(5)</sup>		Rcp = A*Rmeas <sup>3</sup> + B*Rmeas <sup>2</sup> + C*Rmeas + D [sina]							

## CRITERIA

|Max Pol. Err.| + U < |MPE Pol.|

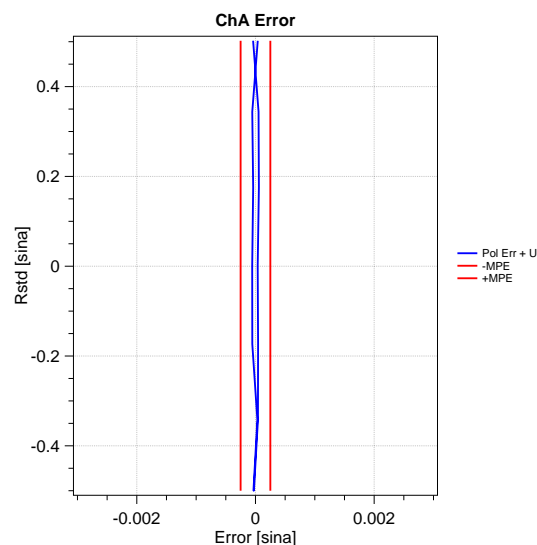
## COMPLIANT

To the Datasheet

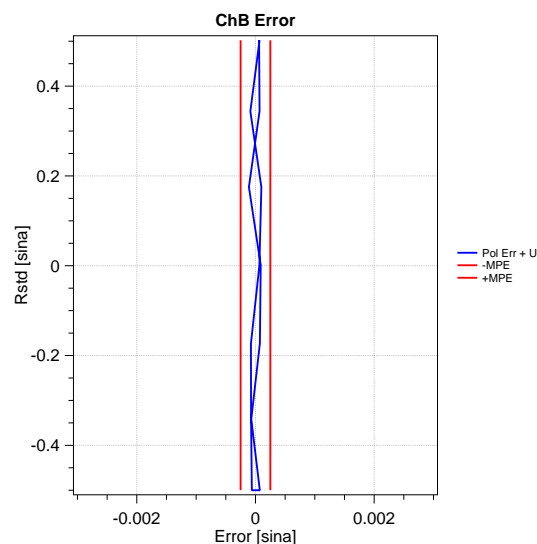
Issue Date: 19.07.2022

CQE: *Mario Bruni*

Ch. A				
Rstd <sup>(6)</sup> [sina]	Rmeas <sup>(7)</sup> [sina]	U [sina]	Rcl <sup>(3)</sup> [sina]	Rcp <sup>(5)</sup> [sina]
0.502083	0.502127	0.000026	0.502028	0.502070
0.343746	0.343875	0.000026	0.343777	0.343774
0.174810	0.174947	0.000026	0.174850	0.174822
0.000736	0.000893	0.000026	0.000797	0.000766
-0.173345	-0.173204	0.000026	-0.173299	-0.173317
-0.341960	-0.341878	0.000026	-0.341971	-0.341966
-0.500008	-0.499941	0.000026	-0.500034	-0.500000
-0.500032	-0.499972	0.000026	-0.500065	-0.500032
-0.341690	-0.341617	0.000026	-0.341710	-0.341705
-0.172912	-0.172817	0.000026	-0.172912	-0.172930
0.001226	0.001341	0.000026	0.001246	0.001214
0.175314	0.175408	0.000026	0.175311	0.175283
0.344146	0.344222	0.000026	0.344124	0.344121
0.502183	0.502254	0.000026	0.502155	0.502197



Ch. B				
Rstd <sup>(6)</sup> [sina]	Rmeas <sup>(7)</sup> [sina]	U [sina]	Rcl <sup>(3)</sup> [sina]	Rcp <sup>(5)</sup> [sina]
0.502106	0.502231	0.000060	0.502139	0.502098
0.343778	0.343908	0.000060	0.343817	0.343804
0.174850	0.174879	0.000060	0.174790	0.174810
0.000764	0.000800	0.000060	0.000713	0.000757
-0.173323	-0.173267	0.000060	-0.173352	-0.173307
-0.341942	-0.341855	0.000060	-0.341938	-0.341928
-0.499998	-0.499849	0.000060	-0.499930	-0.499996
-0.500021	-0.499887	0.000060	-0.499968	-0.500035
-0.341682	-0.341599	0.000060	-0.341681	-0.341671
-0.172906	-0.172881	0.000060	-0.172966	-0.172920
0.001224	0.001238	0.000060	0.001151	0.001196
0.175305	0.175425	0.000060	0.175336	0.175356
0.344137	0.344232	0.000060	0.344142	0.344128
0.502178	0.502310	0.000060	0.502218	0.502177



**LEGEND**

- (1): Linear factors obtained by means of linear formula according to the least squares method.
- (2): The errors shows related to residual error on the calibration step applying linear/polynomial correction + Uncertainty.
- (3): Values calculated using linear correction.
- (4): Polynomial factors obtained by means of linear multiply regression formula.
- (5): Values calculated using polynomial correction.
- (6): Reference readings.
- (7): Instruments readings.

**NOTES:**

- a) % F.S. error is calculated on whole range.
- b) Resulting error depends on the effects of linearity and hysteresis.
- c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty.

Configured in "Normal mode" (SISGEO MODBUS protocol)

WIRING: see manual



# CALIBRATION REPORT

N. 2206148

**Serial Number:** S221834

**Product Code:** OMDP30V1000

**Model:** MD PROFILE VERT. GAUGE 30°, 1 mt

**Type:** Digital

**Calibration Date:** 19/07/2022 11:17

**Job Number:** 22-00717

**Project Code:** Address #07

## Test Conditions

**Temperature:** 22 ± 0.5 °C

**Humidity:** 54 ± 10%

**Barometric Pressure:** 999 ± 5 hPa

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: in accordance to the instruments model)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

## Traceability is through first line standards, validated by certificates of calibration

Electronic level 210: Microplan, LE602, LAT 172 LE0014/18

Multimeter 171: Keysight Technologies, 3458A, LAT 046 365165

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98 and to EA-4/02. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

### Linear Sensitivity Factors: <sup>(1)</sup>

<b>Ch. A</b>	<b>A=</b>	9.9998E-01 [sina/sina]	<b>B=</b>	-2.9499E-05 [sina]
<b>Ch. B</b>		1.0000E+00 [sina/sina]		-2.1810E-05 [sina]

### Maximum Linear Error + U: <sup>(2)</sup>

<b>Ch. A</b>	0.0090 [%FS]
<b>Ch. B</b>	0.0193 [%FS]

### Final Linear Reading: <sup>(3)</sup>

Rcl = A\*Rmeas + B [sina]

### Polynomial Sensitivity Factors: <sup>(4)</sup>

<b>Ch. A</b>	<b>A=</b>	-1.7351E-04 [sina/sina <sup>3</sup> ]	<b>B=</b>	3.0779E-04 [sina/sina <sup>2</sup> ]	<b>C=</b>	1.0000E+00 [sina/sina]	<b>D=</b>	-6.4530E-05 [sina]
<b>Ch. B</b>		-3.7615E-04 [sina/sina <sup>3</sup> ]		-1.0584E-05 [sina/sina <sup>2</sup> ]		1.0001E+00 [sina/sina]		-2.0542E-05 [sina]

### Maximum Polynomial Error + U: <sup>(2)</sup>

<b>Ch. A</b>	0.0085 [%FS]
<b>Ch. B</b>	0.0183 [%FS]

**MPE Pol. = 0.025 [%FS]**

### Final Polynomial Readings: <sup>(5)</sup>

Rcp = A\*Rmeas<sup>3</sup> + B\*Rmeas<sup>2</sup> + C\*Rmeas + D [sina]

## CRITERIA

|Max Pol. Err.| + U < |MPE Pol.|

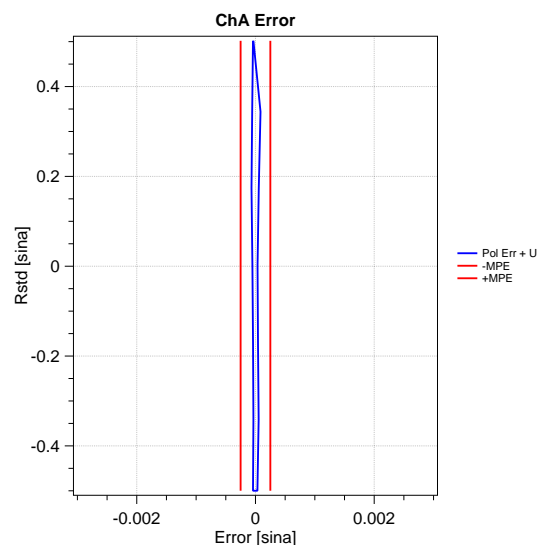
## COMPLIANT

To the Datasheet

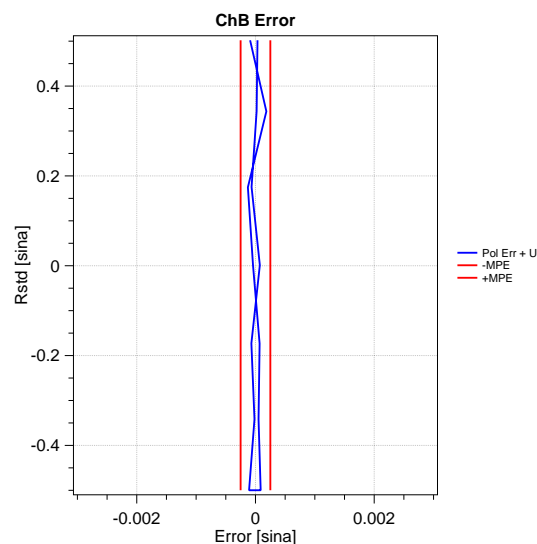
Issue Date: 19.07.2022

CQE: *Mario Bruni*

Ch. A				
Rstd <sup>(6)</sup> [sina]	Rmeas <sup>(7)</sup> [sina]	U [sina]	Rcl <sup>(3)</sup> [sina]	Rcp <sup>(5)</sup> [sina]
0.501852	0.501864	0.000032	0.501824	0.501861
0.343547	0.343601	0.000032	0.343565	0.343570
0.174675	0.174764	0.000032	0.174731	0.174710
0.000689	0.000772	0.000032	0.000743	0.000708
-0.173311	-0.173246	0.000032	-0.173272	-0.173302
-0.341852	-0.341824	0.000032	-0.341846	-0.341850
-0.499836	-0.499854	0.000032	-0.499873	-0.499826
-0.499851	-0.499879	0.000032	-0.499898	-0.499851
-0.341531	-0.341526	0.000032	-0.341548	-0.341552
-0.172791	-0.172745	0.000032	-0.172771	-0.172802
0.001282	0.001344	0.000032	0.001314	0.001279
0.175290	0.175321	0.000032	0.175288	0.175267
0.344053	0.344031	0.000032	0.343995	0.344000
0.502031	0.502036	0.000032	0.501996	0.502033



Ch. B				
Rstd <sup>(6)</sup> [sina]	Rmeas <sup>(7)</sup> [sina]	U [sina]	Rcl <sup>(3)</sup> [sina]	Rcp <sup>(5)</sup> [sina]
0.501945	0.502035	0.000016	0.502031	0.502019
0.343638	0.343471	0.000016	0.343461	0.343471
0.174768	0.174883	0.000016	0.174868	0.174879
0.000764	0.000809	0.000016	0.000787	0.000788
-0.173255	-0.173270	0.000016	-0.173298	-0.173308
-0.341808	-0.341799	0.000016	-0.341833	-0.341843
-0.499811	-0.499851	0.000016	-0.499891	-0.499882
-0.499836	-0.499714	0.000016	-0.499754	-0.499745
-0.341513	-0.341468	0.000016	-0.341502	-0.341512
-0.172770	-0.172680	0.000016	-0.172708	-0.172717
0.001294	0.001257	0.000016	0.001236	0.001237
0.175296	0.175349	0.000016	0.175333	0.175345
0.344058	0.344055	0.000016	0.344045	0.344055
0.502031	0.502029	0.000016	0.502025	0.502013



**LEGEND**

(1): Linear factors obtained by means of linear formula according to the least squares method.  
 (2): The errors shows related to residual error on the calibration step applying linear/polynomial correction + Uncertainty.  
 (3): Values calculated using linear correction.  
 (4): Polynomial factors obtained by means of linear multiply regression formula.  
 (5): Values calculated using polynomial correction.  
 (6): Reference readings.  
 (7): Instruments readings.

**NOTES:**

a) % F.S. error is calculated on whole range.  
 b) Resulting error depends on the effects of linearity and hysteresis.  
 c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty.

Configured in "Normal mode" (SISGEO MODBUS protocol)

WIRING: see manual



# CALIBRATION REPORT

N. 2206149

**Serial Number:** S221835

**Product Code:** OMDP30V1000

**Model:** MD PROFILE VERT. GAUGE 30°, 1 mt

**Type:** Digital

**Calibration Date:** 19/07/2022 11:17

**Job Number:** 22-00717

**Project Code:** Address #08

## Test Conditions

**Temperature:** 22 ± 0.5 °C

**Humidity:** 54 ± 10%

**Barometric Pressure:** 999 ± 5 hPa

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: in accordance to the instruments model)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

## Traceability is through first line standards, validated by certificates of calibration

Electronic level 210: Microplan, LE602, LAT 172 LE0014/18

Multimeter 171: Keysight Technologies, 3458A, LAT 046 365165

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98 and to EA-4/02. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

### Linear Sensitivity Factors: <sup>(1)</sup>

<b>Ch. A</b>	<b>A=</b>	1.0000E+00 [sina/sina]	<b>B=</b>	-1.1965E-05 [sina]
<b>Ch. B</b>		9.9997E-01 [sina/sina]		-4.2081E-05 [sina]

### Maximum Linear Error + U: <sup>(2)</sup>

<b>Ch. A</b>	0.0079 [%FS]
<b>Ch. B</b>	0.0149 [%FS]

### Final Linear Reading: <sup>(3)</sup>

Rcl = A\*Rmeas + B [sina]

### Polynomial Sensitivity Factors: <sup>(4)</sup>

<b>Ch. A</b>	<b>A=</b>	3.4849E-04 [sina/sina <sup>3</sup> ]	<b>B=</b>	2.0402E-04 [sina/sina <sup>2</sup> ]	<b>C=</b>	9.9993E-01 [sina/sina]	<b>D=</b>	-3.5275E-05 [sina]
<b>Ch. B</b>		1.1485E-03 [sina/sina <sup>3</sup> ]		9.3450E-05 [sina/sina <sup>2</sup> ]		9.9974E-01 [sina/sina]		-5.2923E-05 [sina]

### Maximum Polynomial Error + U: <sup>(2)</sup>

<b>Ch. A</b>	0.0050 [%FS]
<b>Ch. B</b>	0.0139 [%FS]

**MPE Pol. = 0.025 [%FS]**

### Final Polynomial Readings: <sup>(5)</sup>

Rcp = A\*Rmeas<sup>3</sup> + B\*Rmeas<sup>2</sup> + C\*Rmeas + D [sina]

## CRITERIA

|Max Pol. Err.| + U < |MPE Pol.|

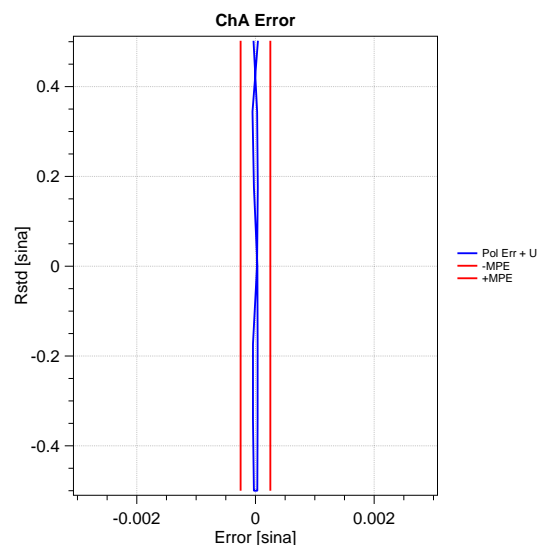
## COMPLIANT

To the Datasheet

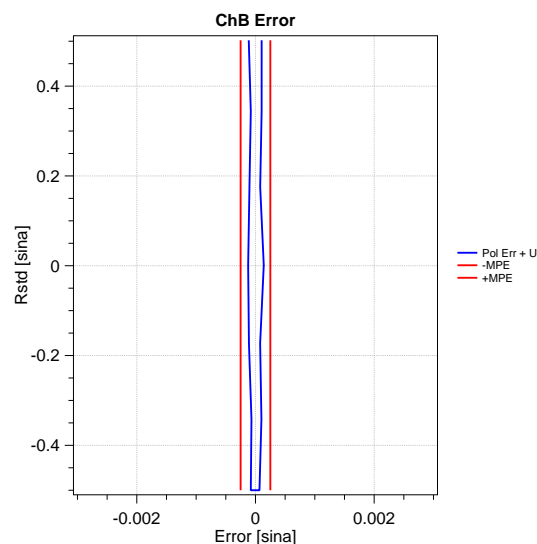
Issue Date: 19.07.2022

CQE: *Mario Bruni*

Ch. A				
Rstd <sup>(6)</sup> [sina]	Rmeas <sup>(7)</sup> [sina]	U [sina]	Rcl <sup>(3)</sup> [sina]	Rcp <sup>(5)</sup> [sina]
0.502083	0.502065	0.000025	0.502053	0.502091
0.343746	0.343763	0.000025	0.343751	0.343742
0.174810	0.174835	0.000025	0.174823	0.174795
0.000736	0.000770	0.000025	0.000758	0.000734
-0.173345	-0.173308	0.000025	-0.173320	-0.173327
-0.341960	-0.341940	0.000025	-0.341952	-0.341942
-0.500008	-0.500013	0.000025	-0.500025	-0.500006
-0.500032	-0.500044	0.000025	-0.500056	-0.500038
-0.341690	-0.341699	0.000025	-0.341711	-0.341701
-0.172912	-0.172905	0.000025	-0.172917	-0.172924
0.001226	0.001254	0.000025	0.001242	0.001218
0.175314	0.175355	0.000025	0.175343	0.175316
0.344146	0.344192	0.000025	0.344180	0.344172
0.502183	0.502140	0.000025	0.502128	0.502166



Ch. B				
Rstd <sup>(6)</sup> [sina]	Rmeas <sup>(7)</sup> [sina]	U [sina]	Rcl <sup>(3)</sup> [sina]	Rcp <sup>(5)</sup> [sina]
0.502106	0.502165	0.000067	0.502108	0.502153
0.343778	0.343873	0.000067	0.343820	0.343790
0.174850	0.174974	0.000067	0.174926	0.174885
0.000764	0.000874	0.000067	0.000831	0.000820
-0.173323	-0.173268	0.000067	-0.173305	-0.173280
-0.341942	-0.341940	0.000067	-0.341972	-0.341941
-0.499998	-0.499940	0.000067	-0.499966	-0.499985
-0.500021	-0.499977	0.000067	-0.500003	-0.500022
-0.341682	-0.341715	0.000067	-0.341746	-0.341716
-0.172906	-0.172906	0.000067	-0.172942	-0.172918
0.001224	0.001204	0.000067	0.001162	0.001151
0.175305	0.175381	0.000067	0.175333	0.175292
0.344137	0.344183	0.000067	0.344130	0.344100
0.502178	0.502153	0.000067	0.502095	0.502141



- LEGEND**
- (1): Linear factors obtained by means of linear formula according to the least squares method.
  - (2): The errors shows related to residual error on the calibration step applying linear/polynomial correction + Uncertainty.
  - (3): Values calculated using linear correction.
  - (4): Polynomial factors obtained by means of linear multiply regression formula.
  - (5): Values calculated using polynomial correction.
  - (6): Reference readings.
  - (7): Instruments readings.

- NOTES:**
- a) % F.S. error is calculated on whole range.
  - b) Resulting error depends on the effects of linearity and hysteresis.
  - c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty.

Configured in "Normal mode" (SISGEO MODBUS protocol)

WIRING: see manual



# CALIBRATION REPORT

N. 2206150

**Serial Number:** S221836

**Product Code:** OMDP30V1000

**Model:** MD PROFILE VERT. GAUGE 30°, 1 mt

**Type:** Digital

**Calibration Date:** 19/07/2022 11:17

**Job Number:** 22-00717

**Project Code:** Address #09

## Test Conditions

**Temperature:** 22 ± 0.5 °C

**Humidity:** 54 ± 10%

**Barometric Pressure:** 999 ± 5 hPa

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: in accordance to the instruments model)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

## Traceability is through first line standards, validated by certificates of calibration

Electronic level 210: Microplan, LE602, LAT 172 LE0014/18

Multimeter 171: Keysight Technologies, 3458A, LAT 046 365165

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98 and to EA-4/02. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

<b>Linear Sensitivity Factors: <sup>(1)</sup></b>		<b>Ch. A</b>	1.0000E+00 [sina/sina]	<b>B=</b>	-5.0945E-05 [sina]
		<b>Ch. B</b>	9.9998E-01 [sina/sina]		-2.7366E-05 [sina]
<b>Maximum Linear Error + U: <sup>(2)</sup></b>		<b>Ch. A</b>	0.0079 [%FS]		
		<b>Ch. B</b>	0.0106 [%FS]		
<b>Final Linear Reading: <sup>(3)</sup></b>		Rcl = A*Rmeas + B [sina]			
<b>Polynomial Sensitivity Factors: <sup>(4)</sup></b>	<b>Ch. A</b>	2.2445E-04 [sina/sina <sup>3</sup> ]	3.0642E-04 [sina/sina <sup>2</sup> ]	9.9995E-01 [sina/sina]	-8.5909E-05 [sina]
	<b>Ch. B</b>	9.9050E-04 [sina/sina <sup>3</sup> ]	1.4056E-04 [sina/sina <sup>2</sup> ]	9.9978E-01 [sina/sina]	-4.3548E-05 [sina]
<b>Maximum Polynomial Error + U: <sup>(2)</sup></b>		<b>Ch. A</b>	0.0036 [%FS]		
		<b>Ch. B</b>	0.0089 [%FS]		
<b>MPE Pol. = 0.025 [%FS]</b>					
<b>Final Polynomial Readings: <sup>(5)</sup></b>		Rcp = A*Rmeas <sup>3</sup> + B*Rmeas <sup>2</sup> + C*Rmeas + D [sina]			

## CRITERIA

|Max Pol. Err.| + U < |MPE Pol.|

## COMPLIANT

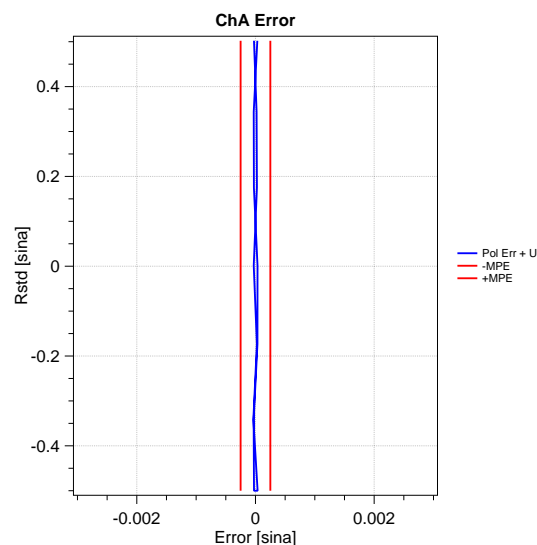
To the Datasheet

Issue Date: 19.07.2022

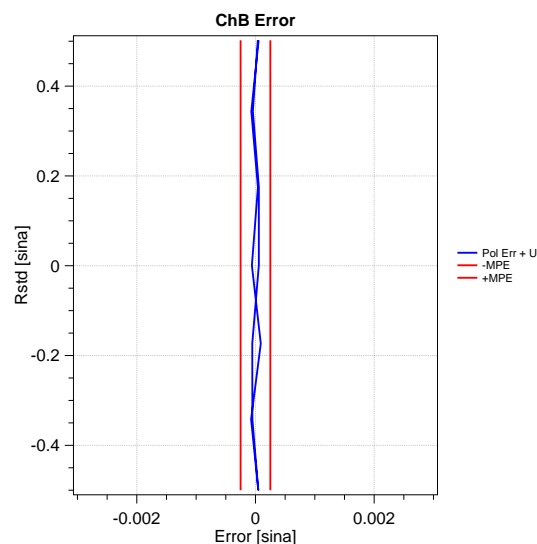
CQE: *Mario Bruni*



Ch. A				
Rstd <sup>(6)</sup> [sina]	Rmeas <sup>(7)</sup> [sina]	U [sina]	Rcl <sup>(3)</sup> [sina]	Rcp <sup>(5)</sup> [sina]
0.502083	0.502075	0.000018	0.502021	0.502070
0.343746	0.343815	0.000018	0.343762	0.343757
0.174810	0.174902	0.000018	0.174850	0.174818
0.000736	0.000806	0.000018	0.000755	0.000720
-0.173345	-0.173291	0.000018	-0.173341	-0.173360
-0.341960	-0.341905	0.000018	-0.341954	-0.341947
-0.500008	-0.499989	0.000018	-0.500037	-0.500002
-0.500032	-0.500037	0.000018	-0.500086	-0.500050
-0.341690	-0.341630	0.000018	-0.341679	-0.341672
-0.172912	-0.172849	0.000018	-0.172899	-0.172918
0.001226	0.001323	0.000018	0.001272	0.001237
0.175314	0.175392	0.000018	0.175340	0.175308
0.344146	0.344203	0.000018	0.344150	0.344146
0.502183	0.502195	0.000018	0.502142	0.502190



Ch. B				
Rstd <sup>(6)</sup> [sina]	Rmeas <sup>(7)</sup> [sina]	U [sina]	Rcl <sup>(3)</sup> [sina]	Rcp <sup>(5)</sup> [sina]
0.502106	0.502083	0.000039	0.502044	0.502092
0.343778	0.343870	0.000039	0.343835	0.343809
0.174850	0.174919	0.000039	0.174888	0.174847
0.000764	0.000829	0.000039	0.000802	0.000785
-0.173323	-0.173367	0.000039	-0.173390	-0.173374
-0.341942	-0.341914	0.000039	-0.341934	-0.341907
-0.499998	-0.499983	0.000039	-0.499999	-0.500007
-0.500021	-0.500006	0.000039	-0.500022	-0.500030
-0.341682	-0.341675	0.000039	-0.341695	-0.341668
-0.172906	-0.172883	0.000039	-0.172907	-0.172890
0.001224	0.001250	0.000039	0.001223	0.001207
0.175305	0.175358	0.000039	0.175327	0.175287
0.344137	0.344203	0.000039	0.344169	0.344143
0.502178	0.502169	0.000039	0.502130	0.502178



- LEGEND**
- (1): Linear factors obtained by means of linear formula according to the least squares method.
  - (2): The errors shows related to residual error on the calibration step applying linear/polynomial correction + Uncertainty.
  - (3): Values calculated using linear correction.
  - (4): Polynomial factors obtained by means of linear multiply regression formula.
  - (5): Values calculated using polynomial correction.
  - (6): Reference readings.
  - (7): Instruments readings.

- NOTES:**
- a) % F.S. error is calculated on whole range.
  - b) Resulting error depends on the effects of linearity and hysteresis.
  - c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty.

Configured in "Normal mode" (SISGEO MODBUS protocol)

WIRING: see manual



# CALIBRATION REPORT

N. 2206151

**Serial Number:** S221837

**Product Code:** OMDP30V1000

**Model:** MD PROFILE VERT. GAUGE 30°, 1 mt

**Type:** Digital

**Calibration Date:** 19/07/2022 11:21

**Job Number:** 22-00717

**Project Code:** Address #10

## Test Conditions

**Temperature:** 22 ± 0.5 °C

**Humidity:** 54 ± 10%

**Barometric Pressure:** 999 ± 5 hPa

## Calibration Method

Calibration is made by direct comparison method using a calibration bench.

Calibration is made at SISGEO laboratory. SISGEO S.r.l. is a Certified UNI EN ISO 9001 Company.

Calibration procedures: IST 10/01\*; IST 10/04\*; IST 10/06\*; IST 10/13\*; IST 10/28\* (\*: in accordance to the instruments model)

Calibration is made according to inclinometric, displacement, load and pressure conventions reported in standard for calibration equipment.

## Traceability is through first line standards, validated by certificates of calibration

Electronic level 210: Microplan, LE602, LAT 172 LE0014/18

Multimeter 171: Keysight Technologies, 3458A, LAT 046 365165

- The measurement results reported in this Calibration Report were obtained following the calibration procedures and the reference standard written above. They relate only to the calibrated item and they are valid only for the time and conditions of calibration, unless otherwise specified.

- The measurements uncertainties (U) stated in this document have been determined according to the ISO/IEC Guide 98 and to EA-4/02. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage k factor corresponding to a confidence level of about 95%. Usually the k factor is 2.

- MPE: Maximum Permissible Error

## RESULTS

Linear Sensitivity Factors: <sup>(1)</sup>		Ch. A	9.9999E-01 [sina/sina]	B=	-3.4019E-05 [sina]				
		Ch. B	9.9997E-01 [sina/sina]		-3.4917E-06 [sina]				
Maximum Linear Error + U: <sup>(2)</sup>		Ch. A	0.0075 [%FS]						
		Ch. B	0.0111 [%FS]						
Final Linear Reading: <sup>(3)</sup>		Rcl = A*Rmeas + B [sina]							
Polynomial Sensitivity Factors: <sup>(4)</sup>	Ch. A	A=	2.3946E-04 [sina/sina <sup>3</sup> ]	B=	2.7066E-04 [sina/sina <sup>2</sup> ]	C=	9.9994E-01 [sina/sina]	D=	-6.4908E-05 [sina]
	Ch. B		6.0880E-04 [sina/sina <sup>3</sup> ]		1.3796E-04 [sina/sina <sup>2</sup> ]		9.9985E-01 [sina/sina]		-1.9314E-05 [sina]
Maximum Polynomial Error + U: <sup>(2)</sup>		Ch. A	0.0059 [%FS]						
		Ch. B	0.0088 [%FS]						
MPE Pol. = 0.025 [%FS]									
Final Polynomial Readings: <sup>(5)</sup>		Rcp = A*Rmeas <sup>3</sup> + B*Rmeas <sup>2</sup> + C*Rmeas + D [sina]							

## CRITERIA

|Max Pol. Err.| + U < |MPE Pol.|

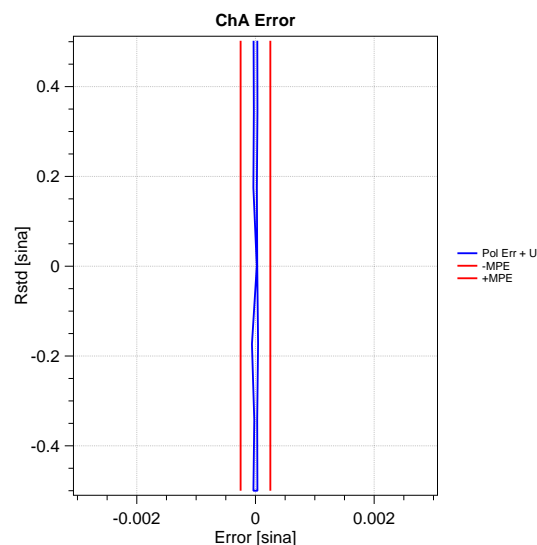
## COMPLIANT

To the Datasheet

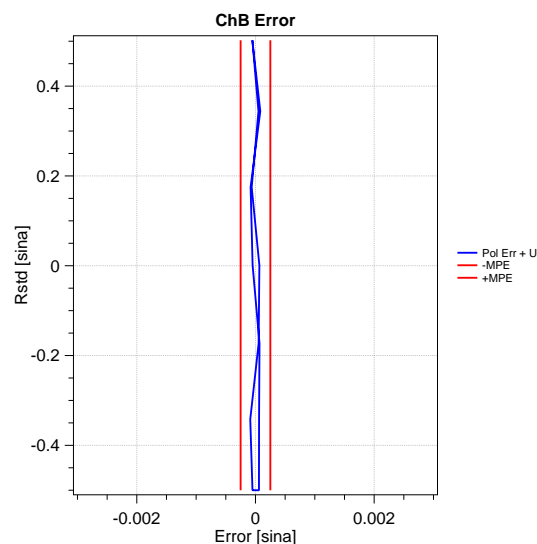
Issue Date: 19.07.2022

CQE: *Mario Bruni*

Ch. A				
Rstd <sup>(6)</sup> [sina]	Rmeas <sup>(7)</sup> [sina]	U [sina]	Rcl <sup>(3)</sup> [sina]	Rcp <sup>(5)</sup> [sina]
0.502083	0.502093	0.000018	0.502053	0.502097
0.343746	0.343799	0.000018	0.343761	0.343756
0.174810	0.174893	0.000018	0.174857	0.174827
0.000736	0.000797	0.000018	0.000763	0.000732
-0.173345	-0.173255	0.000018	-0.173287	-0.173303
-0.341960	-0.341934	0.000018	-0.341964	-0.341957
-0.500008	-0.499993	0.000018	-0.500022	-0.499991
-0.500032	-0.500049	0.000018	-0.500077	-0.500047
-0.341690	-0.341678	0.000018	-0.341708	-0.341701
-0.172912	-0.172890	0.000018	-0.172923	-0.172938
0.001226	0.001279	0.000018	0.001245	0.001214
0.175314	0.175374	0.000018	0.175338	0.175309
0.344146	0.344174	0.000018	0.344136	0.344131
0.502183	0.502165	0.000018	0.502126	0.502170



Ch. B				
Rstd <sup>(6)</sup> [sina]	Rmeas <sup>(7)</sup> [sina]	U [sina]	Rcl <sup>(3)</sup> [sina]	Rcp <sup>(5)</sup> [sina]
0.502106	0.502094	0.000048	0.502074	0.502110
0.343778	0.343805	0.000048	0.343790	0.343775
0.174850	0.174905	0.000048	0.174895	0.174866
0.000764	0.000765	0.000048	0.000761	0.000746
-0.173323	-0.173337	0.000048	-0.173334	-0.173329
-0.341942	-0.341926	0.000048	-0.341918	-0.341902
-0.499998	-0.500010	0.000048	-0.499997	-0.499995
-0.500021	-0.500047	0.000048	-0.500034	-0.500032
-0.341682	-0.341719	0.000048	-0.341711	-0.341695
-0.172906	-0.172934	0.000048	-0.172931	-0.172926
0.001224	0.001245	0.000048	0.001241	0.001225
0.175305	0.175378	0.000048	0.175368	0.175339
0.344137	0.344135	0.000048	0.344120	0.344104
0.502178	0.502168	0.000048	0.502148	0.502184



**LEGEND**

(1): Linear factors obtained by means of linear formula according to the least squares method.  
 (2): The errors shows related to residual error on the calibration step applying linear/polynomial correction + Uncertainty.  
 (3): Values calculated using linear correction.  
 (4): Polynomial factors obtained by means of linear multiply regression formula.  
 (5): Values calculated using polynomial correction.  
 (6): Reference readings.  
 (7): Instruments readings.

**NOTES:**

a) % F.S. error is calculated on whole range.  
 b) Resulting error depends on the effects of linearity and hysteresis.  
 c) The errors reported into the charts are the results of the sum of each step error and the related measure uncertainty.

Configured in "Normal mode" (SISGEO MODBUS protocol)

WIRING: see manual



## ZÁRUČNÍ LIST, POTVRZENÍ O POVINNOSTECH PRODÁVAJÍCÍHO Z VADNÉHO PLNĚNÍ

Typ přístroje: H50-G

Datum předání odběrateli: 16.5.2024

Výrobní číslo: 50500225

Datum uvedení do provozu: 21.5.2024

**FIEDLER**  
ELEKTRONIKA PRO EKOLOGII  
FIEDLER AMS s.r.o.  
Lipová 1789/9, 370 05 České Budějovice  
DIČ: CZ03155501 Tel.: 386 358 274

.....  
**Výrobce / Prodávající – podpis**

Výrobek byl před odesláním z firmy přezkoušený a správně nastavený. Přesto se může stát, že se v průběhu provozu na přístroji objeví závady, které jsou při testování výrobku u výrobce nezjistitelné. Nad rámec zákonných povinností prodávajícího z odpovědnosti za vady poskytuje prodávající kupujícímu záruku za jakost. Jestliže bude případná závada způsobena vadným materiálem, výrobou nebo chybou v programovém vybavení, bude výrobek bezplatně opraven nebo vyměněn, pokud bude reklamace uplatněna v záruční době, která činí:

**Dvacet čtyři (24) měsíců od uvedení do provozu, nejdéle však třicet (30) měsíců od data prodeje.**

Výrobce neručí za vady způsobené zásahem do konstrukce přístroje, jeho poškozením nebo neodborným připojením. Při instalaci a provozu přístroje je nutné dodržovat všechny pokyny uvedené v dokumentaci, relevantní ČSN a pravidla bezpečnosti.

Provádění všech oprav v době záruky přísluší pouze výrobcí. Z hygienických důvodů je nutné do opravy zasílat pouze čisté a řádně zabalené výrobky.

## ZJEDNODUŠENÉ EU PROHLÁŠENÍ O SHODĚ

ve smyslu čl. 10 odst. 9 směrnice 2014/53/EU, o harmonizaci právních předpisů členských států týkajících se dodávání rádiových zařízení na trh, ve znění pozdějších předpisů

Výrobce: **FIEDLER AMS s.r.o.**  
**Lipová 1789/9, 370 05 České Budějovice 2, Česká republika**  
**IČO 03155501, DIČ: CZ03155501**

Tímto FIEDLER AMS s.r.o. prohlašuje, že typ rádiového zařízení H50-G je v souladu se směrnicí 2014/53/EU. Úplné znění EU prohlášení o shodě je k dispozici na této internetové adrese:

<https://conformity.fiedler.company>

**FIEDLER**  
ELEKTRONIKA PRO EKOLOGII  
FIEDLER AMS s.r.o.  
Lipová 1789/9, 370 05 České Budějovice  
DIČ: CZ03155501 Tel.: 386 358 274

**Ing. Jindřich Fiedler**  
jednatel

V Českých Budějovicích dne 1. 3. 2024



## ZÁRUČNÍ LIST, POTVRZENÍ O POVINNOSTECH PRODÁVAJÍCÍHO Z VADNÉHO PLNĚNÍ

Typ přístroje: H50-G

Datum předání odběrateli: 16.5.2024

Výrobní číslo: 50500224

Datum uvedení do provozu: 21.5.2024

**FIEDLER**  
ELEKTRONIKA PRO EKOLOGII

FIEDLER AMS s.r.o.  
Lipová 1789/9, 370 05 České Budějovice  
DIČ: CZ03155501 Tel.: 386 358 274

*Výrobce / Prodávající – podpis*

Výrobek byl před odesláním z firmy přezkoušený a správně nastavený. Přesto se může stát, že se v průběhu provozu na přístroji objeví závady, které jsou při testování výrobku u výrobce nezjistitelné. Nad rámec zákonných povinností prodávajícího z odpovědnosti za vady poskytuje prodávající kupujícímu záruku za jakost. Jestliže bude případná závada způsobena vadným materiálem, výrobou nebo chybou v programovém vybavení, bude výrobek bezplatně opraven nebo vyměněn, pokud bude reklamace uplatněna v záruční době, která činí:

**Dvacet čtyři (24) měsíců od uvedení do provozu, nejdéle však třicet (30) měsíců od data prodeje.**

Výrobce neručí za vady způsobené zásahem do konstrukce přístroje, jeho poškozením nebo neodborným připojením. Při instalaci a provozu přístroje je nutné dodržovat všechny pokyny uvedené v dokumentaci, relevantní ČSN a pravidla bezpečnosti.

Provádění všech oprav v době záruky přísluší pouze výrobcí. Z hygienických důvodů je nutné do opravy zasílat pouze čisté a řádně zabalené výrobky.

## ZJEDNODUŠENÉ EU PROHLÁŠENÍ O SHODĚ

ve smyslu čl. 10 odst. 9 směrnice 2014/53/EU, o harmonizaci právních předpisů členských států týkajících se dodávání rádiových zařízení na trh, ve znění pozdějších předpisů

Výrobce: **FIEDLER AMS s.r.o.**  
**Lipová 1789/9, 370 05 České Budějovice 2, Česká republika**  
**IČO 03155501, DIČ: CZ03155501**

Tímto FIEDLER AMS s.r.o. prohlašuje, že typ rádiového zařízení H-50G je v souladu se směrnicí 2014/53/EU. Úplné znění EU prohlášení o shodě je k dispozici na této internetové adrese:

<https://conformity.fiedler.company>

V Českých Budějovicích dne 1. 3. 2024

**FIEDLER**  
ELEKTRONIKA PRO EKOLOGII  
FIEDLER AMS s.r.o.  
Lipová 1789/9, 370 05 České Budějovice  
DIČ: CZ03155501 Tel.: 386 358 274

**Ing. Jindřich Fiedler**  
jednatel



## ZÁRUČNÍ LIST, POTVRZENÍ O POVINNOSTECH PRODÁVAJÍCÍHO Z VADNÉHO PLNĚNÍ

Typ přístroje: H50-G

Datum předání odběrateli: 16.5.2024

Výrobní číslo: 50500223

Datum uvedení do provozu: 21.5.2024

**FIEDLER**  
ELEKTRONIKA PRO EKOLOGII

FIEDLER AMS s.r.o.  
Lipová 1789/9, 370 05 Č. Budějovice  
DIČ: CZ03155501 Tel.: 386 358 274

.....  
**Výrobce / Prodávající – podpis**

Výrobek byl před odesláním z firmy přezkoušený a správně nastavený. Přesto se může stát, že se v průběhu provozu na přístroji objeví závady, které jsou při testování výrobku u výrobce nezjistitelné. Nad rámec zákonných povinností prodávajícího z odpovědnosti za vady poskytuje prodávající kupujícímu záruku za jakost. Jestliže bude případná závada způsobena vadným materiálem, výrobou nebo chybou v programovém vybavení, bude výrobek bezplatně opraven nebo vyměněn, pokud bude reklamacie uplatněna v záruční době, která činí:

**Dvacet čtyři (24) měsíců od uvedení do provozu, nejdéle však třicet (30) měsíců od data prodeje.**

Výrobce neručí za vady způsobené zásahem do konstrukce přístroje, jeho poškozením nebo neodborným připojením. Při instalaci a provozu přístroje je nutné dodržovat všechny pokyny uvedené v dokumentaci, relevantní ČSN a pravidla bezpečnosti.

Provádění všech oprav v době záruky přísluší pouze výrobcí. Z hygienických důvodů je nutné do opravy zasílat pouze čisté a řádně zabalené výrobky.

## ZJEDNODUŠENÉ EU PROHLÁŠENÍ O SHODĚ

ve smyslu čl. 10 odst. 9 směrnice 2014/53/EU, o harmonizaci právních předpisů členských států týkajících se dodávání rádiových zařízení na trh, ve znění pozdějších předpisů

Výrobce: **FIEDLER AMS s.r.o.**  
**Lipová 1789/9, 370 05 České Budějovice 2, Česká republika**  
**IČO 03155501, DIČ: CZ03155501**

Tímto FIEDLER AMS s.r.o. prohlašuje, že typ rádiového zařízení H50-G je v souladu se směrnicí 2014/53/EU. Úplné znění EU prohlášení o shodě je k dispozici na této internetové adrese:

<https://conformity.fiedler.company>

**FIEDLER**  
ELEKTRONIKA PRO EKOLOGII  
FIEDLER AMS s.r.o.  
Lipová 1789/9, 370 05 Č. Budějovice  
DIČ: CZ03155501 Tel.: 386 358 274

V Českých Budějovicích dne 1. 3. 2024

**Ing. Jindřich Fiedler**  
jednatel



## ZÁRUČNÍ LIST, POTVRZENÍ O POVINNOSTECH PRODÁVAJÍCÍHO Z VADNÉHO PLNĚNÍ

Typ přístroje: H50-G.....

Datum předání odběrateli: 16.5.2024.....

Výrobní číslo: 50570222.....

Datum uvedení do provozu: 21.5.2024.....

**FIEDLER**

ELEKTRONIKA PRO EKOLOGII

FIEDLER AMS s.r.o.

Lipová 1789/9, 370 05 Č. Budějovice  
DIČ: CZ03155501 Tel.: 386 358 274

*Výrobce / Prodávající – podpis*

Výrobek byl před odesláním z firmy přezkoušený a správně nastavený. Přesto se může stát, že se v průběhu provozu na přístroji objeví závady, které jsou při testování výrobku u výrobce nezjistitelné. Nad rámec zákonných povinností prodávajícího z odpovědnosti za vady poskytuje prodávající kupujícímu záruku za jakost. Jestliže bude případná závada způsobena vadným materiálem, výrobou nebo chybou v programovém vybavení, bude výrobek bezplatně opraven nebo vyměněn, pokud bude reklamacie uplatněna v záruční době, která činí:

**Dvacet čtyři (24) měsíců od uvedení do provozu, nejdéle však třicet (30) měsíců od data prodeje.**

Výrobce neručí za vady způsobené zásahem do konstrukce přístroje, jeho poškozením nebo neodborným připojením. Při instalaci a provozu přístroje je nutné dodržovat všechny pokyny uvedené v dokumentaci, relevantní ČSN a pravidla bezpečnosti.

Provádění všech oprav v době záruky přísluší pouze výrobcu. Z hygienických důvodů je nutné do opravy zasílat pouze čisté a řádně zabalené výrobky.

## ZJEDNODUŠENÉ EU PROHLÁŠENÍ O SHODĚ

ve smyslu čl. 10 odst. 9 směrnice 2014/53/EU, o harmonizaci právních předpisů členských států týkajících se dodávání rádiových zařízení na trh, ve znění pozdějších předpisů

Výrobce: **FIEDLER AMS s.r.o.**

Lipová 1789/9, 370 05 České Budějovice 2, Česká republika

IČO 03155501, DIČ: CZ03155501

Tímto FIEDLER AMS s.r.o. prohlašuje, že typ rádiového zařízení H50-G..... je v souladu se směrnicí 2014/53/EU. Úplné znění EU prohlášení o shodě je k dispozici na této internetové adrese:

<https://conformity.fiedler.company>

**FIEDLER**

ELEKTRONIKA PRO EKOLOGII

FIEDLER AMS s.r.o.

Lipová 1789/9, 370 05 Č. Budějovice  
DIČ: CZ03155501 Tel.: 386 358 274

V Českých Budějovicích dne 1. 3. 2024

**Ing. Jindřich Fiedler**

*jednatel*



## **ZÁRUČNÍ LIST,** **POTVRZENÍ O POVINNOSTECH PRODÁVAJÍCÍHO Z VADNÉHO PLNĚNÍ**

Typ přístroje: H50-G

Datum předání odběrateli: 16.5.2024

Výrobní číslo: 20500221

Datum uvedení do provozu: 21.5.2024

**FIEDLER**

ELEKTRONIKA PRO EKOLOGII

FIEDLER AMS s.r.o.

Lipová 1789/9, 370 05 C. Budějovice  
DIČ: CZ03155501 tel.: 386 358 274

**Výrobce / Prodávající – podpis**

Výrobek byl před odesláním z firmy přezkoušený a správně nastavený. Přesto se může stát, že se v průběhu provozu na přístroji objeví závady, které jsou při testování výrobku u výrobce nezjistitelné. Nad rámec zákonných povinností prodávajícího z odpovědnosti za vady poskytuje prodávající kupujícímu záruku za jakost. Jestliže bude případná závada způsobena vadným materiálem, výrobou nebo chybou v programovém vybavení, bude výrobek bezplatně opraven nebo vyměněn, pokud bude reklamacie uplatněna v záruční době, která činí:

**Dvacet čtyři (24) měsíců od uvedení do provozu, nejdéle však třicet (30) měsíců od data prodeje.**

Výrobce neručí za vady způsobené zásahem do konstrukce přístroje, jeho poškozením nebo neodborným připojením. Při instalaci a provozu přístroje je nutné dodržovat všechny pokyny uvedené v dokumentaci, relevantní ČSN a pravidla bezpečnosti.

Provádění všech oprav v době záruky přísluší pouze výrobcí. Z hygienických důvodů je nutné do opravy zasílat pouze čisté a řádně zabalené výrobky.

## **ZJEDNODUŠENÉ EU PROHLÁŠENÍ O SHODĚ**

ve smyslu čl. 10 odst. 9 směrnice 2014/53/EU, o harmonizaci právních předpisů členských států týkajících se dodávání rádiových zařízení na trh, ve znění pozdějších předpisů

Výrobce: **FIEDLER AMS s.r.o.**  
**Lipová 1789/9, 370 05 České Budějovice 2, Česká republika**  
**IČO 03155501, DIČ: CZ03155501**

Tímto FIEDLER AMS s.r.o. prohlašuje, že typ rádiového zařízení H50-G je v souladu se směrnicí 2014/53/EU. Úplné znění EU prohlášení o shodě je k dispozici na této internetové adrese:

<https://conformity.fiedler.company>

V Českých Budějovicích dne 1. 3. 2024

**FIEDLER**  
ELEKTRONIKA PRO EKOLOGII  
FIEDLER AMS s.r.o.  
Lipová 1789/9, 370 05 C. Budějovice  
DIČ: CZ03155501 tel.: 386 358 274

**Ing. Jindřich Fiedler**  
jednatel



## ZÁRUČNÍ LIST, POTVRZENÍ O POVINNOSTECH PRODÁVAJÍCÍHO Z VADNÉHO PLNĚNÍ

Typ přístroje: H50-G.....

Datum předání odběrateli: 16.5.2024.....

Výrobní číslo: 50500220.....

Datum uvedení do provozu: 21.5.2024.....

**FIEDLER**

ELEKTRONIKA PRO EKOLOGII

FIEDLER AMS s.r.o.

Lipová 1789/9, 370 05 České Budějovice

DIČ: CZ03155501 Tel.: 386 358 274

Výrobce / Prodávající – podpis

Výrobek byl před odesláním z firmy přezkoušený a správně nastavený. Přesto se může stát, že se v průběhu provozu na přístroji objeví závady, které jsou při testování výrobku u výrobce nezjistitelné. Nad rámec zákonných povinností prodávajícího z odpovědnosti za vady poskytuje prodávající kupujícímu záruku za jakost. Jestliže bude případná závada způsobena vadným materiálem, výrobou nebo chybou v programovém vybavení, bude výrobek bezplatně opraven nebo vyměněn, pokud bude reklamace uplatněna v záruční době, která činí:

**Dvacet čtyři (24) měsíců od uvedení do provozu, nejdéle však třicet (30) měsíců od data prodeje.**

Výrobce neručí za vady způsobené zásahem do konstrukce přístroje, jeho poškozením nebo neodborným připojením. Při instalaci a provozu přístroje je nutné dodržovat všechny pokyny uvedené v dokumentaci, relevantní ČSN a pravidla bezpečnosti.

Provádění všech oprav v době záruky přísluší pouze výrobcí. Z hygienických důvodů je nutné do opravy zasílat pouze čisté a řádně zabalené výrobky.

## ZJEDNODUŠENÉ EU PROHLÁŠENÍ O SHODĚ

ve smyslu čl. 10 odst. 9 směrnice 2014/53/EU, o harmonizaci právních předpisů členských států týkajících se dodávání rádiových zařízení na trh, ve znění pozdějších předpisů

Výrobce: **FIEDLER AMS s.r.o.**

Lipová 1789/9, 370 05 České Budějovice 2, Česká republika

IČO 03155501, DIČ: CZ03155501

Tímto FIEDLER AMS s.r.o. prohlašuje, že typ rádiového zařízení H50-G ..... je v souladu se směrnicí 2014/53/EU. Úplné znění EU prohlášení o shodě je k dispozici na této internetové adrese:

<https://conformity.fiedler.company>

**FIEDLER**

ELEKTRONIKA PRO EKOLOGII

FIEDLER AMS s.r.o.

Lipová 1789/9, 370 05 České Budějovice

DIČ: CZ03155501 Tel.: 386 358 274

Ing. Jindřich Fiedler

jednatel

V Českých Budějovicích dne 1. 3. 2024



## ZÁRUČNÍ LIST, POTVRZENÍ O POVINNOSTECH PRODAVÁJÍCÍHO Z VADNÉHO PLNĚNÍ

Typ přístroje: TSH22-3-7/7

Datum předání odběrateli: 16.5.2024

Výrobní číslo: 12500273

Datum uvedení do provozu: 21.5.2024

**FIEDLER**

ELEKTRONIKA PRO EKOLOGII

FIEDLER AMS s.r.o.

Lipová 1789/9, 370 05 Č. Budějovice

DIČ: CZ03155501 Tel.: 386 358 274

.....  
Výrobce / Prodávající – podpis

Výrobek byl před odesláním z firmy přezkoušený a správně nastavený. Přesto se může stát, že se v průběhu provozu na přístroji objeví závady, které jsou při testování výrobku u výrobce nezjistitelné. Nad rámec zákonných povinností prodávajícího z odpovědnosti za vady poskytuje prodávající kupujícímu záruku za jakost. Jestliže bude případná závada způsobena vadným materiálem, výrobou nebo chybou v programovém vybavení, bude výrobek bezplatně opraven nebo vyměněn, pokud bude reklamace uplatněna v záruční době, která činí:

**Dvacet čtyři (24) měsíců od uvedení do provozu, nejdéle však třicet (30) měsíců od data prodeje.**

Výrobce neručí za vady způsobené zásahem do konstrukce přístroje, jeho poškozením nebo neodborným připojením. Při instalaci a provozu přístroje je nutné dodržovat všechny pokyny uvedené v dokumentaci, relevantní ČSN a pravidla bezpečnosti.

Provádění všech oprav v době záruky přísluší pouze výrobcí. Z hygienických důvodů je nutné do opravy zasílat nouze čisté a řádně zahalené výrobky.

## ZÁRUČNÍ LIST, POTVRZENÍ O POVINNOSTECH PRODAVÁJÍCÍHO Z VADNÉHO PLNĚNÍ

Typ přístroje: TSH22-3-7/7

Datum předání odběrateli: 16.5.2024

Výrobní číslo: 12500272

Datum uvedení do provozu: 21.5.2024

**FIEDLER**

ELEKTRONIKA PRO EKOLOGII

FIEDLER AMS s.r.o.

Lipová 1789/9, 370 05 Č. Budějovice

DIČ: CZ03155501 Tel.: 386 358 274

.....  
Výrobce / Prodávající – podpis

Výrobek byl před odesláním z firmy přezkoušený a správně nastavený. Přesto se může stát, že se v průběhu provozu na přístroji objeví závady, které jsou při testování výrobku u výrobce nezjistitelné. Nad rámec zákonných povinností prodávajícího z odpovědnosti za vady poskytuje prodávající kupujícímu záruku za jakost. Jestliže bude případná závada způsobena vadným materiálem, výrobou nebo chybou v programovém vybavení, bude výrobek bezplatně opraven nebo vyměněn, pokud bude reklamace uplatněna v záruční době, která činí:

**Dvacet čtyři (24) měsíců od uvedení do provozu, nejdéle však třicet (30) měsíců od data prodeje.**

Výrobce neručí za vady způsobené zásahem do konstrukce přístroje, jeho poškozením nebo neodborným připojením. Při instalaci a provozu přístroje je nutné dodržovat všechny pokyny uvedené v dokumentaci, relevantní ČSN a pravidla bezpečnosti.

Provádění všech oprav v době záruky přísluší pouze výrobcí. Z hygienických důvodů je nutné do opravy zasílat nouze čisté a řádně zahalené výrobky.



## ZÁRUČNÍ LIST, POTVRZENÍ O POVINNOSTECH PRODAVÁJÍCÍHO Z VADNÉHO PLNĚNÍ

Typ přístroje: TSH 22 - J-7/12

Datum předání odběrateli: 16.5.2024

Výrobní číslo: 12500275

Datum uvedení do provozu: 21.5.2024

**FIEDLER**

ELEKTRONIKA PRO EKOLOGII

FIEDLER AMS s.r.o.

Lipová 1789/9, 370 05 Č. Budějovice

DIČ: CZ03155501 Tel.: 386 358 274

Výrobce / Prodávající – podpis

Výrobek byl před odesláním z firmy přezkoušený a správně nastavený. Přesto se může stát, že se v průběhu provozu na přístroji objeví závady, které jsou při testování výrobku u výrobce nezjistitelné. Nad rámec zákonných povinností prodávajícího z odpovědnosti za vady poskytuje prodávající kupujícímu záruku za jakost. Jestliže bude případná závada způsobena vadným materiálem, výrobou nebo chybou v programovém vybavení, bude výrobek bezplatně opraven nebo vyměněn, pokud bude reklamáce uplatněna v záruční době, která činí:

**Dvacet čtyři (24) měsíců od uvedení do provozu, nejdéle však třicet (30) měsíců od data prodeje.**

Výrobce neručí za vady způsobené zásahem do konstrukce přístroje, jeho poškozením nebo neodborným připojením. Při instalaci a provozu přístroje je nutné dodržovat všechny pokyny uvedené v dokumentaci, relevantní ČSN a pravidla bezpečnosti.

Provádění všech oprav v době záruky přísluší pouze výrobcí. Z hygienických důvodů je nutné do opravy zasílat pouze čisté a řádně zabalené výrobky.

## ZÁRUČNÍ LIST, POTVRZENÍ O POVINNOSTECH PRODAVÁJÍCÍHO Z VADNÉHO PLNĚNÍ

Typ přístroje: TSH 22 - J-7/12

Datum předání odběrateli: 16.5.2024

Výrobní číslo: 12500274

Datum uvedení do provozu: 21.5.2024

**FIEDLER**

ELEKTRONIKA PRO EKOLOGII

FIEDLER AMS s.r.o.

Lipová 1789/9, 370 05 Č. Budějovice

DIČ: CZ03155501 Tel.: 386 358 274

Výrobce / Prodávající – podpis

Výrobek byl před odesláním z firmy přezkoušený a správně nastavený. Přesto se může stát, že se v průběhu provozu na přístroji objeví závady, které jsou při testování výrobku u výrobce nezjistitelné. Nad rámec zákonných povinností prodávajícího z odpovědnosti za vady poskytuje prodávající kupujícímu záruku za jakost. Jestliže bude případná závada způsobena vadným materiálem, výrobou nebo chybou v programovém vybavení, bude výrobek bezplatně opraven nebo vyměněn, pokud bude reklamáce uplatněna v záruční době, která činí:

**Dvacet čtyři (24) měsíců od uvedení do provozu, nejdéle však třicet (30) měsíců od data prodeje.**

Výrobce neručí za vady způsobené zásahem do konstrukce přístroje, jeho poškozením nebo neodborným připojením. Při instalaci a provozu přístroje je nutné dodržovat všechny pokyny uvedené v dokumentaci, relevantní ČSN a pravidla bezpečnosti.

Provádění všech oprav v době záruky přísluší pouze výrobcí. Z hygienických důvodů je nutné do opravy zasílat pouze čisté a řádně zabalené výrobky.



## ZÁRUČNÍ LIST, POTVRZENÍ O POVINNOSTECH PRODAVÁJÍCÍHO Z VADNÉHO PLNĚNÍ

Typ přístroje: *TSH22-3-7/7*

Datum předání odběrateli: *16.5.2024*

Výrobní číslo: *12500277*

Datum uvedení do provozu: *21.5.2024*

**FIEDLER**  
ELEKTRONIKA PRO EKOLOGII

FIEDLER AMS s.r.o.  
Lipová 1789/9, 370 05 České Budějovice  
DIČ: CZ03155501 Tel.: 386 358 274

.....  
Výrobce / Prodávající – podpis

Výrobek byl před odesláním z firmy přezkoušený a správně nastavený. Přesto se může stát, že se v průběhu provozu na přístroji objeví závady, které jsou při testování výrobku u výrobce nezjistitelné. Nad rámec zákonných povinností prodávajícího z odpovědnosti za vady poskytuje prodávající kupujícímu záruku za jakost. Jestliže bude případná závada způsobena vadným materiálem, výrobou nebo chybou v programovém vybavení, bude výrobek bezplatně opraven nebo vyměněn, pokud bude reklamace uplatněna v záruční době, která činí:

**Dvacet čtyři (24) měsíců od uvedení do provozu, nejdéle však třicet (30) měsíců od data prodeje.**

Výrobce neručí za vady způsobené zásahem do konstrukce přístroje, jeho poškozením nebo neodborným připojením. Při instalaci a provozu přístroje je nutné dodržovat všechny pokyny uvedené v dokumentaci, relevantní ČSN a pravidla bezpečnosti.

Provádění všech oprav v době záruky přísluší pouze výrobcí. Z hygienických důvodů je nutné do opravy zasílat pouze čisté a řádně zabalené výrobky.

## ZÁRUČNÍ LIST, POTVRZENÍ O POVINNOSTECH PRODAVÁJÍCÍHO Z VADNÉHO PLNĚNÍ

Typ přístroje: *TSH22-3/7*

Datum předání odběrateli: *16.5.2024*

Výrobní číslo: *12500276*

Datum uvedení do provozu: *21.5.2024*

**FIEDLER**  
ELEKTRONIKA PRO EKOLOGII

FIEDLER AMS s.r.o.  
Lipová 1789/9, 370 05 České Budějovice  
DIČ: CZ03155501 Tel.: 386 358 274

.....  
Výrobce / Prodávající – podpis

Výrobek byl před odesláním z firmy přezkoušený a správně nastavený. Přesto se může stát, že se v průběhu provozu na přístroji objeví závady, které jsou při testování výrobku u výrobce nezjistitelné. Nad rámec zákonných povinností prodávajícího z odpovědnosti za vady poskytuje prodávající kupujícímu záruku za jakost. Jestliže bude případná závada způsobena vadným materiálem, výrobou nebo chybou v programovém vybavení, bude výrobek bezplatně opraven nebo vyměněn, pokud bude reklamace uplatněna v záruční době, která činí:

**Dvacet čtyři (24) měsíců od uvedení do provozu, nejdéle však třicet (30) měsíců od data prodeje.**

Výrobce neručí za vady způsobené zásahem do konstrukce přístroje, jeho poškozením nebo neodborným připojením. Při instalaci a provozu přístroje je nutné dodržovat všechny pokyny uvedené v dokumentaci, relevantní ČSN a pravidla bezpečnosti.

Provádění všech oprav v době záruky přísluší pouze výrobcí. Z hygienických důvodů je nutné do opravy zasílat pouze čisté a řádně zabalené výrobky.



## **SOUHRNNÁ TABULKA PRVKŮ GTM**

Název zakázky:	Karlovy Vary – Nové Sedlo u Lokte – Sokolov, GTP a STP		
Číslo zakázky:	2023 - 345	Objednatel:	METROPROJEKT Praha a.s.
Datum:	06 / 2024	Zpracoval:	Mgr. Petr Karlín
Počet stran:	4	Schválil:	Mgr. Filip Dudík

**Příloha 5 - Souhrnná tabulka prvků GTM**

název prvku	souřadnice JTSK			km	Umístění vůči ose K1		hloubka (m)	stávající / nový
	X	Y	Z					
GP1	1 010 053,571	851 017,708	400,951	186,493	L		2,5	N
GP2	1 009 986,099	851 000,820	396,795	186,556	L		2,5	N
GP3	1 009 846,653	850 920,837	389,711	186,707	L		3,0	N
GP4	1 009 789,484	850 885,996	391,435	186,783	L		2,0	N
GP5	1 009 754,873	850 874,871	391,802	186,824	L		2,0	N
GP6	1 009 629,610	850 816,471	390,992	186,918	L		2,5	N
GP7	1 009 590,242	850 819,843	390,964	186,992	L		2,5	N
GP8	1 009 542,104	850 818,330	393,529	187,084	L		2,5	N
GP9	1 009 530,568	850 789,508	401,448	187,073		P	2,5	N
GP10	1 009 626,466	850 763,178	392,689	186,985		P	beton konstrukce	N
GP11	1 009 668,051	850 767,616	395,533	186,941		P	2,5	N
GP12	1 009 760,014	850 798,823	397,409	186,833		P	4,0	N
GP13	1 009 886,516	850 856,489	392,668	186,735		P	3,0	N
GP14	1 009 677,869	850 834,158	390,901	187,016	L		3,0	N
GB-I-1	1 009 964,387	850 977,394	397,439	186,584	L		1,5	N
GB-I-2	1 009 966,304	850 973,113	399,571	186,584	L		1,5	N
GB-I-3	1 009 969,028	850 968,939	402,863	186,584	L		1,5	N
GB-I-4	1 009 979,450	850 949,046	403,394	186,584		P	1,5	N
GB-I-5	1 009 983,453	850 937,127	405,070	186,584		P	1,5	N
GB-I-6	1 009 987,227	850 928,464	401,397	186,584		P	1,5	N
GB-I-7	1 009 990,789	850 918,733	397,829	186,584		P	1,5	N
GB-II-1	1 009 846,940	850 920,569	389,711	186,707	L		1,5	N
GB-II-2	1 009 857,712	850 905,780	394,467	186,707	L		1,5	N
GB-II-GB2	1 009 886,516	850 856,489	392,668	186,702	L		1,5	N
GB-II-3	1 009 866,615	850 894,252	402,565	186,707	L		1,5	N

**Příloha 5 - Souhrnná tabulka prvků GTM**

název prvku	souřadnice JTSK			km	Umístění vůči ose K1		hloubka (m)	stávající / nový
	X	Y	Z					
GB-II-4	1 009 873,647	850 885,354	402,928	186,707		P	1,5	N
GB-II-5	1 009 886,888	850 869,380	392,572	186,707		P	1,5	N
GB-III-1	1 009 785,048	850 857,755	393,41	186,800	L		1,5	N
GB-III-2	1 009 789,918	850 850,371	397,66	186,800	L		1,5	N
GB-III-3	1 009 793,688	850 842,739	401,61	186,800	L		1,5	N
GB-III-4	1 009 797,018	850 836,691	401,94	186,800	osa os		1,5	N
GB-III-5	1 009 800,957	850 829,616	402,25	186,800		P	1,5	N
GB-III-6	1 009 802,709	850 826,032	399,65	186,800		P	1,5	N
GB-III-7	1 009 804,639	850 822,996	397,49	186,800		P	1,5	N
GB-IV-1	1 009 739,141	850 834,567	392,67	186,856	L		1,5	N
GB-IV-2	1 009 742,049	850 827,072	397,39	186,856	L		1,5	N
GB-IV-3	1 009 745,454	850 818,257	401,35	186,856	L		1,5	N
GB-IV-4	1 009 749,997	850 806,473	401,94	186,856		P	1,5	N
GB-IV-5	1 009 750,870	850 804,294	400,68	186,856		P	1,5	N
GB-IV-6	1 009 751,888	850 801,532	398,47	186,856		P	1,5	N
GB-V-1	1 009 650,991	850 813,817	391,37	186,959	L		1,5	N
GB-V-2	1 009 652,906	850 805,423	396,06	186,959	L		1,5	N
GB-V-3	1 009 653,783	850 794,564	400,87	186,959	L		1,5	N
GB-V-4	1 009 655,437	850 782,493	401,07	186,959		P	1,5	N
GB-V-5	1 009 656,064	850 777,838	398,93	186,959		P	1,5	N
GB-V-6	1 009 656,787	850 773,796	395,87	186,959		P	1,5	N
GB-VII-1	1 009 582,233	850 812,502	391,46	187,023	L		1,5	N
GB-VII-2	1 009 582,927	850 806,855	394,3	187,023	L		1,5	N
GB-VII-3	1 009 583,305	850 792,872	400,32	187,023	L		1,5	N
GB-VII-4	1 009 581,092	850 780,656	400,2	187,023		P	1,5	N

**Příloha 5 - Souhrnná tabulka prvků GTM**

název prvku	souřadnice JTSK			km	Umístění vůči ose K1		hloubka (m)	stávající / nový
	X	Y	Z					
GB-VII-5	1 009 581,350	850 775,211	397,15	187,023		P	1,5	N
GB-VII-6	1 009 581,531	850 769,493	394,75	187,023		P	1,5	N
GPR-I-K1L	1 009 970,993	850 965,242	403,47	186,584	L		ÚT	N
GPR-I-K1R	1 009 972,080	850 963,125	403,3	186,584		P	ÚT	N
GPR-I-K2L	1 009 973,054	850 960,841	403,35	186,584		P	ÚT	N
GPR-I-K2R	1 009 974,102	850 958,823	403,17	186,584		P	ÚT	N
GPR-II-K1L	1 009 868,385	850 891,951	402,4	186,707	L		ÚT	N
GPR-II-K1R	1 009 869,934	850 890,103	402,43	186,707		P	ÚT	N
GPR-II-K2L	1 009 871,409	850 888,235	402,36	186,707		P	ÚT	N
GPR-II-K2R	1 009 872,827	850 886,412	402,37	186,707		P	ÚT	N
GPR-III-K1L	1 009 795,517	850 839,718	401,66	186,800	L		ÚT	N
GPR-III-K1R	1 009 796,705	850 837,658	401,83	186,800		P	ÚT	N
GPR-III-K2L	1 009 797,680	850 835,727	401,64	186,800		P	ÚT	N
GPR-III-K2R	1 009 798,806	850 833,711	401,81	186,800		P	ÚT	N
GPR-IV-K1L	1 009 746,302	850 815,844	401,24	186,856	L		ÚT	N
GPR-IV-K1R	1 009 747,144	850 813,629	401,41	186,856		P	ÚT	N
GPR-IV-K2L	1 009 748,108	850 811,804	401,25	186,856		P	ÚT	N
GPR-IV-K2R	1 009 748,941	850 809,667	401,41	186,856		P	ÚT	N
GPR-V-K1L	1 009 653,890	850 792,527	400,49	186,959	L		ÚT	N
GPR-V-K1R	1 009 654,153	850 790,150	400,66	186,959		P	ÚT	N
GPR-V-K2L	1 009 654,444	850 788,271	400,51	186,959		P	ÚT	N
GPR-V-K2R	1 009 654,694	850 786,023	400,67	186,959		P	ÚT	N
GPR-VII-K1L	1 009 583,109	850 791,051	399,9	187,023	L		ÚT	N
GPR-VII-K1R	1 009 582,900	850 788,632	400,08	187,023		P	ÚT	N
GPR-VII-K2L	1 009 582,624	850 786,807	399,95	187,023		P	ÚT	N



**Příloha 5 - Souhrnná tabulka prvků GTM**

název prvku	souřadnice JTSK			km	Umístění vůči ose K1		hloubka (m)	stávající / nový
	X	Y	Z					
GPR-VII-K2R	1 009 582,432	850 784,546	400,11	187,023		P	ÚT	N
INK1-1	1 009 876,497	850 885,698	401,76	186,708		P	15,0	S
INK1-2	1 009 885,095	850 874,046	393,14	186,708		P	8,0	S
INK2-1	1 009 628,366	850 793,546	399,3	186,977	L		12,0	S
INK3-1	1 009 617,705	850 792,425	399,44	186,987	L		11,5	S
IJ1	1 009 876,165	850 859,986	392,16	186,724		P	15,0	S
IJ101	1 009 971,804	850 964,298	403,34	186,584	osa K1		10,0	N
IJ102	1 009 746,427	850 814,674	401,18	186,855	osa K1		11,0	N
NKV101	1 009 654,251	850 791,463	400,5	186,950	osa K1		11,0	N
NKV102	1 009 581,494	850 790,002	399,94	187,023	osa K1		11,0	N
JH02	1 009 968,602	850 934,061	404,8	186,605		P	13,0	S
JH03	1 009 739,754	850 835,763	392,22	186,856	L		8,5	S
JH04	1 009 750,356	850 795,385	397,3	186,856		P	10,0	S
JH05	1 009 648,861	850 815,221	390,59	186,959	L		10,0	S
JH06	1 009 629,484	850 768,739	392,86	186,976		P	8,0	S
JH07	1 009 526,477	850 813,595	394,2	187,083	L		10,0	S
MPT01	1 009 589,950	850 812,745	390,68	187,017	L		3,3	S
MPT02	1 009 889,408	850 864,874	391,5	186,707		P	3,5	S

## **GEOLOGICKÁ DOKUMENTACE NOVÝCH VRTŮ**

Název zakázky:	Karlovy Vary – Nové Sedlo u Lokte – Sokolov, GTP a STP		
Číslo zakázky:	2023 - 345	Objednatel:	METROPROJEKT Praha a.s.
Datum:	06 / 2024	Zpracoval:	Mgr. Petr Karlín
Počet stran:	4	Schválil:	Mgr. Filip Dudík

Název akce

Karlovy Vary - Nové Sedlo u Lokte - Sokolov, GTP a STP

Zakázka číslo

Vrtáno
--------

15. 04. 2024

Výška (m n. m.) B.p.v.

$$Z = 403.32$$

Souřadnice S-JTSK

$$Y = 850\,964.27 \quad X = 1\,009\,971.82$$

HPV ustálená

Nezastižena

Objednatel

METROPROJEKT Praha a.s.

HPV naražená

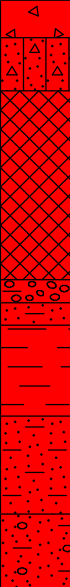



Nezastižena

HPV ustálená

Nezastižena

Stránka

1 z 1

	Stratigrafie	Nadmořská výška (m)	Vrtný profil	Hloubka (Mocnost) (m)	Hladina podzemní vody (m)	Vzorek Lab. číslo	Zařídění ČSN 73 6133	Vrtálnost TP76	Těžitelnost ČSN 73 6133	Konzistence /ulehlost	GEOLOGICKÝ POPIS ZEMIN A HORNIN
0	Rec	402.82		0.50		G2 GPY	II	I	SU	Štěrkové lože, čisté	
1		402.12		1.20		G5 GCY	II	I	UL	Štěrkové lože, silně zanesené uhelným prachem, charakteru jílovitého štěrku	
2				(2.50)		Y	I	I	M-T	Násep - bez výnosu jádra, stlačeno	
3											
4		399.62		3.70		G5 GCY	I	I	T	Násep - štěrk jílovitý, tuhý, šedohnědý, se škvárou	
		399.32		4.00		S5 SCY	I	I	SU	Násep - písek jílovitý, středně ulehlý, středozrnný, světle oranžově hnědý	
		399.02		4.30						Násep - jíl se střední plasticitou, tuhý, šedohnědý, příměs úlomků pískovce	
5				(1.20)		F6 CIY	I	I	T		
		397.82		5.50							
6				(1.30)		S5 SCY	I	I	SU	Násep - písek jílovitý, středně ulehlý, středozrnný, šedohnědý, s hojnými úlomky pískovce velikosti do 2 - 3 cm	
	396.52	6.80									
7		(1.00)	S5 SC+GY	I	I	SU	Násep - písek jílovitý, středně ulehlý, hrubozrnný, rezavě hnědý, příměs poloopracovaných úlomků do 1 cm - 20 %, občasné úlomky až do 3 cm				
	395.52	7.80									
8	Miocen						R5	I	I		Pískovec silně až zcela zvětralý, hrubozrnný, světle hnědý, rozvrtává se na písek hrubozrnný a úlomky do 5 cm, úlomky dále lámatelné až obtížně lámatelné v ruce
9				(2.40)							
10		393.12		10.20							

Vrt byl ukončen v hloubce 10.20 m.

## Legenda



 Naražená hladina podzemní vody



 Ustálená hladina podzemní vody

## Vzorky



Vzorek zeminy pro  
environmentální  
účely

### POZNÁMKA

Všechny rozměry jsou v metrech.

Měřítko 1 : 100

Souprava
Vrtmistr

MI3-pásová  
J. Čonka




Dokumentoval(a)

Mgr. Karlín

Zpracoval(a)	
--------------	--

Ing. Bouška

GeoTec-GS										GEOLOGICKÁ DOKUMENTACE VRTU										Označení vrtu  <b>IJ102</b>	
Název akce Karlovy Vary - Nové Sedlo u Lokte - Sokolov, GTP a STP																					
Zakázka číslo 2023-345				Vrtáno 14. 04. 2024				Výška (m n. m.) B.p.v. Z = 401.17				Souřadnice S-JTSK Y = 850 814.68 X = 1009 746.44									
Objednatel METROPROJEKT Praha a.s.						HPV naražená Nezastižena				HPV ustálená Nezastižena				Stránka 1 z 1							
												GEOLOGICKÝ POPIS ZEMIN A HORNIN									
0  1  2  3  4  5  6  7  8  9  10  11	Stratigrafie  Nadmořská výška (m)  Vrtný profil  Hloubka (Mocnost) (m)  Hladina podzemní vody (m)  Vzorek Lab. číslo  Zatřídění ČSN 73 6133  Vrtnostnost TP76  Těžitelnost ČSN 73 6133  Konzistence /ulehlost	Rec                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            																			

GeoTec-GS		GEOLOGICKÁ DOKUMENTACE VRTU								Označení vrtu																																		
Název akce												NKV101																																
Karlovy Vary - Nové Sedlo u Lokte - Sokolov, GTP a STP																																												
Zakázka číslo		Vrtáno		Výška (m n. m.) B.p.v.		Souřadnice S-JTSK																																						
2023-345		13. 04. 2024		Z = 400.47		Y = 850 791.49 X = 1009 654.30																																						
Objednatel				HPV naražená		HPV ustálená				Stránka																																		
METROPROJEKT Praha a.s.				Nezastižena		Nezastižena				1 z 1																																		
GEOLOGICKÝ POPIS ZEMIN A HORNIN																																												
<table><tr><td rowspan="11">0  1  2  3  4  5  6  7  8  9  10  11</td><td rowspan="11">Stratigrafie</td><td rowspan="11">Nadmořská výška (m)</td><td rowspan="11">Vrtný profil</td><td rowspan="11">Hloubka (Mocnost) (m)</td><td rowspan="11">Hladina podzemní vody (m)</td><td rowspan="11">Vzorek Lab. číslo</td><td rowspan="11">Zatřídění ČSN 73 6133</td><td rowspan="11">Vrtatelnost TP76</td><td rowspan="11">Těžitelnost ČSN 73 6133</td><td rowspan="11">Konzistence /ulehlost</td><td></td></tr><tr><td></td></tr><tr><td></td></tr><tr><td></td></tr><tr><td></td></tr><tr><td></td></tr><tr><td></td></tr><tr><td></td></tr><tr><td></td></tr><tr><td></td></tr><tr><td></td></tr><tr><td colspan="11">Vrt byl ukončen v hloubce 11.00 m.</td></tr></table>												0  1  2  3  4  5  6  7  8  9  10  11	Stratigrafie	Nadmořská výška (m)	Vrtný profil	Hloubka (Mocnost) (m)	Hladina podzemní vody (m)	Vzorek Lab. číslo	Zatřídění ČSN 73 6133	Vrtatelnost TP76	Těžitelnost ČSN 73 6133	Konzistence /ulehlost												Vrt byl ukončen v hloubce 11.00 m.										
0  1  2  3  4  5  6  7  8  9  10  11	Stratigrafie	Nadmořská výška (m)	Vrtný profil	Hloubka (Mocnost) (m)	Hladina podzemní vody (m)	Vzorek Lab. číslo	Zatřídění ČSN 73 6133	Vrtatelnost TP76	Těžitelnost ČSN 73 6133	Konzistence /ulehlost																																		
Vrt byl ukončen v hloubce 11.00 m.																																												
Legenda											POZNÁMKA																																	
<div><div><div></div><div>Naražená hladina podzemní vody</div></div><div><div></div><div>Ustálená hladina podzemní vody</div></div></div> <div>Vzorky<div>Vzorek zeminy pro environmentální účely</div></div>																																												
Všechny rozměry jsou v metrech. Měřítko 1 : 100		Souprava Vrtmistr		MI3-pásová J. Conka		Dokumentoval(a) Mgr. Karlín			Zpracoval(a) Ing. Bouška																																			

GeoTec-GS										GEOLOGICKÁ DOKUMENTACE VRTU										Označení vrtu	
Název akce										Karlovy Vary - Nové Sedlo u Lokte - Sokolov, GTP a STP										NKV102	
Zakázka číslo					Vrtáno																
2023-345					12. 04. 2024					Z = 399.93					Y = 850 790.05 X = 1009 581.54						
Objednatel										HPV naražená					HPV ustálená					Stránka	
METROPROJEKT Praha a.s.										7.50 m (392.43 m n. m.)					Nezastižena					1 z 1	
												GEOLOGICKÝ POPIS ZEMIN A HORNIN									
0	Stratigrafie	Nadmořská výška (m)	Vrtný profil	Hloubka (Mocnost) (m)	Hladina podzemní vody (m)	Vzorek Lab. číslo	Zatřídění ČSN 73 6133	Vrtanost TP76	Těžitelnost ČSN 73 6133	Konzistence /ulehlost											
1	Stratigrafie	Nadmořská výška (m)	Vrtný profil	Hloubka (Mocnost) (m)	Hladina podzemní vody (m)	Vzorek Lab. číslo	Zatřídění ČSN 73 6133	Vrtanost TP76	Těžitelnost ČSN 73 6133	Konzistence /ulehlost											
2	Stratigrafie	Nadmořská výška (m)	Vrtný profil	Hloubka (Mocnost) (m)	Hladina podzemní vody (m)	Vzorek Lab. číslo	Zatřídění ČSN 73 6133	Vrtanost TP76	Těžitelnost ČSN 73 6133	Konzistence /ulehlost											
3	Stratigrafie	Nadmořská výška (m)	Vrtný profil	Hloubka (Mocnost) (m)	Hladina podzemní vody (m)	Vzorek Lab. číslo	Zatřídění ČSN 73 6133	Vrtanost TP76	Těžitelnost ČSN 73 6133	Konzistence /ulehlost											
4	Stratigrafie	Nadmořská výška (m)	Vrtný profil	Hloubka (Mocnost) (m)	Hladina podzemní vody (m)	Vzorek Lab. číslo	Zatřídění ČSN 73 6133	Vrtanost TP76	Těžitelnost ČSN 73 6133	Konzistence /ulehlost											
5	Stratigrafie	Nadmořská výška (m)	Vrtný profil	Hloubka (Mocnost) (m)	Hladina podzemní vody (m)	Vzorek Lab. číslo	Zatřídění ČSN 73 6133	Vrtanost TP76	Těžitelnost ČSN 73 6133	Konzistence /ulehlost											
6	Stratigrafie	Nadmořská výška (m)	Vrtný profil	Hloubka (Mocnost) (m)	Hladina podzemní vody (m)	Vzorek Lab. číslo	Zatřídění ČSN 73 6133	Vrtanost TP76	Těžitelnost ČSN 73 6133	Konzistence /ulehlost											
7	Stratigrafie	Nadmořská výška (m)	Vrtný profil	Hloubka (Mocnost) (m)	Hladina podzemní vody (m)	Vzorek Lab. číslo	Zatřídění ČSN 73 6133	Vrtanost TP76	Těžitelnost ČSN 73 6133	Konzistence /ulehlost											
8	Stratigrafie	Nadmořská výška (m)	Vrtný profil	Hloubka (Mocnost) (m)	Hladina podzemní vody (m)	Vzorek Lab. číslo	Zatřídění ČSN 73 6133	Vrtanost TP76	Těžitelnost ČSN 73 6133	Konzistence /ulehlost											
9	Stratigrafie	Nadmořská výška (m)	Vrtný profil	Hloubka (Mocnost) (m)	Hladina podzemní vody (m)	Vzorek Lab. číslo	Zatřídění ČSN 73 6133	Vrtanost TP76	Těžitelnost ČSN 73 6133	Konzistence /ulehlost											
10	Stratigrafie	Nadmořská výška (m)	Vrtný profil	Hloubka (Mocnost) (m)	Hladina podzemní vody (m)	Vzorek Lab. číslo	Zatřídění ČSN 73 6133	Vrtanost TP76	Těžitelnost ČSN 73 6133	Konzistence /ulehlost											
11	Stratigrafie	Nadmořská výška (m)	Vrtný profil	Hloubka (Mocnost) (m)	Hladina podzemní vody (m)	Vzorek Lab. číslo	Zatřídění ČSN 73 6133	Vrtanost TP76	Těžitelnost ČSN 73 6133	Konzistence /ulehlost											